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STATE BUDGET EDUCATIONAL ESTABLISHMENT OF HIGHER PROFESSIONAL EDUCATION
"NORTH-OSSETIAN STATE MEDICAL ACADEMY" OF THE MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

Department of human anatomy
with topographic anatomy and operative surgery

THE COLLECTOR METHODOLOGICAL GUIDES
to practical training and extracurricular independent work
FOR THE DISCIPLINE "ANATOMY"
for 1st year students of the medical faculty

discipline «Anatomy»
on specialty 31.05.01 «General Medicine»
the main professional educational program of higher education -specialty program

in the specialty 31.05.01 General medicine, approved on 24.05.2023

2 semester
SPLANCHNOLOGY
(DIGESTIVE SYSTEM, RESPIRATORY SYSTEM, UROGENITAL SYSTEM)

Part 1

Student's Full Name _____

Group №_____ Faculty _____

Collection methodological guides to practical training and extracurricular independent work for 1st year students (2 semester) of the medical faculty for the discipline «anatomy» on specialty 31.05.01 «General Medicine», developed by the Department Of Human Anatomy With Topographic Anatomy And Operative Surgery Of State Budget Educational Establishment Of Higher Professional Education "North-Ossetian State Medical Academy" Of The Ministry Of Health Of The Russian Federation

Author: Head of the Department of Human Anatomy with Topographic Anatomy and Operative Surgery, Associate Professor Totoeva O.N.

Reviewers:

1. Head of the Department of Biology and Histology of the Federal State Budgetary Educational Institution of Higher Education NOSMA of the Ministry of Health of Russia, prof. **Bibaeva L.V.**
2. Chief Physician of the Federal Budgetary Institution of Health "Center for Hygiene and Epidemiology in the Republic of North Ossetia - Alania" **Butaev A.K.**

Semester 2

№	The name of theme
1.	Anatomy and topography of the oral cavity, toothes, language and salivary glands, soft sky.
2.	Anatomy and topography drinks, gullet. Run of food food lump. Age features. X-ray-anatomy.
3.	Anatomy and topography of the stomach and intestines.
4.	Anatomy and topography of direct intestine. Age features. X-ray-anatomy.
5.	Anatomy and topography of the liver and pancreas. Liver network miraculousness.
6.	Anatomy and topography peritoneum. Age features. X-ray -anatomy.
7.	Anatomy and the cavity topography of the nose, throat, trachea. Anatomy and topography of bronchial tubes and easy.
8.	Anatomy and the cavity topography of the nose, throat, trachea. Anatomy and topography of bronchial tubes and easy.
9.	TOTAL EMPLOYMENT ON THE PILLS OF UNITS OF DIGESTIVE AND BREATHING SYSTEMS.
10.	Anatomy and kidneys topography, ureter, bladder and urethra channel. Kidneys network miraculousness. Run мочи. Age features. X-ray-anatomy.
11.	Anatomy and topography of men's genitals. Shells testicle and scrotum. Run seed.
12.	Man's crotch. Age features. X-ray anatomy.
13.	Anatomy and topography of female genital organs.
14	Женская промежность. Возрастные особенности. Рентген-анатомия.
15.	Total Employment FOR DRUGS of the URINARY AND REPRODUCTIVE SYSTEMS.
16.	Anatomy and topography of the heart. Chambers of the heart, the structure of the heart wall. Circulation.
17.	Blood supply to the heart: arteries and veins.
18	The conductive system of the heart. Pericardium. Age features. X-ray anatomy.
19.	Anatomy and topography of the aorta and its parts. Branches of the aortic arch. Common carotid artery. Anatomy and topography of the external carotid artery and its branches.
20.	Anatomy and topography of the internal carotid artery and its branches. Anatomy and topography of the subclavian artery and its branches. Blood supply to the brain. Age features. X-ray anatomy.
21.	Anatomy and topography of the thoracic aorta and its branches. Age features. X-ray anatomy.
22.	Anatomy and topography of the abdominal aorta and its branches. Age features. X-ray anatomy
23.	Anatomy and topography of the common and external iliac arteries and their branches. Age features. X-ray anatomy.
24.	Anatomy and topography of the internal iliac artery and its branches. Age features. X-ray anatomy.
25.	Anatomy and topography of the arteries of the free upper limb (axillary, brachial arteries, arteries of the forearm and hand). Age features. X-ray anatomy.
26.	Arteries of the free lower limb (femoral arteries, tibia and foot arteries). Age features. X-ray anatomy.
27.	Veins of the head and neck. Superior Vena cava. Veins of thoracic and abdominal cavities and the pelvis (unpaired, polonara, the lower hollow, the portal vein)
28.	Anatomy and topography of cava-caval and Porto-caval anastomoses. The circulation of the fetus. Anatomy of upper and lower limb veins. Age features. X-ray anatomy.
29.	total employment FOR the PREPARATIONS of the HEART, ARTERIES AND VEINS
30.	Anatomy and topography of the lymphatic system. Age features. X-ray anatomy.
31.	Anatomy and topography of the immune system.
32.	Anatomy and topography of the endocrine system
33.	THE FINAL SESSION ON DRUGS OF THE ORGANS OF THE LYMPHATIC, ENDOCRINE AND IMMUNE SYSTEMS."

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, OF THE ESOPHAGUS. THE PROGRESS OF THE BOLUS. 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:	1. Functions and principles of the digestive system. 2. The main stages of development of the digestive system 3. Parts of the digestive tract. 4. The structure of the walls of the oral cavity. 5. Structure and function of salivary glands. 6. Structure and function of language. 7. Structure and function of the dentition. 8. Types of physiological and pathological bites. 9. The topography of the anterior abdominal wall. 10. Topography of pharynx, its structure and functions. 11. The component parts of lymphoepithelial ring of Waldeyer-Pirogov. 12. Topography of the esophagus, its structure, function, narrowing.
The student needs to know:	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:	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. Нитевидные2. 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. Podnimateli 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).

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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 топе (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:

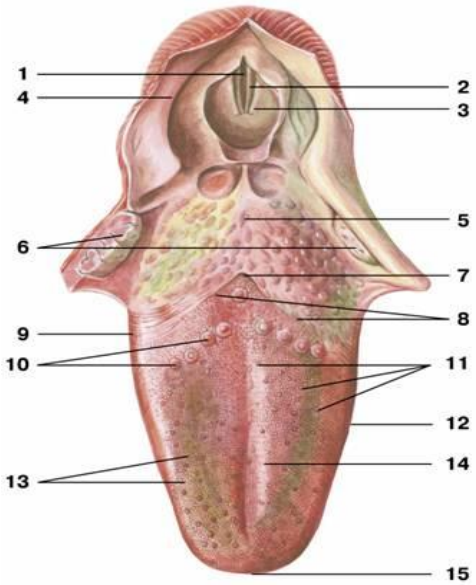
Differences teeth
Permanent Dairy

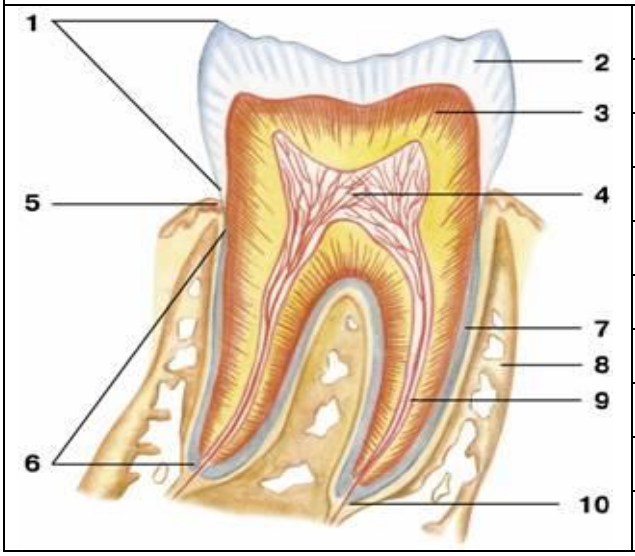
4. To depict schematically teeth formula:

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 subject: the ANATOMY AND TOPOGRAPHY of the SOFT PALATE. THROAT. ESOPHAGUS.

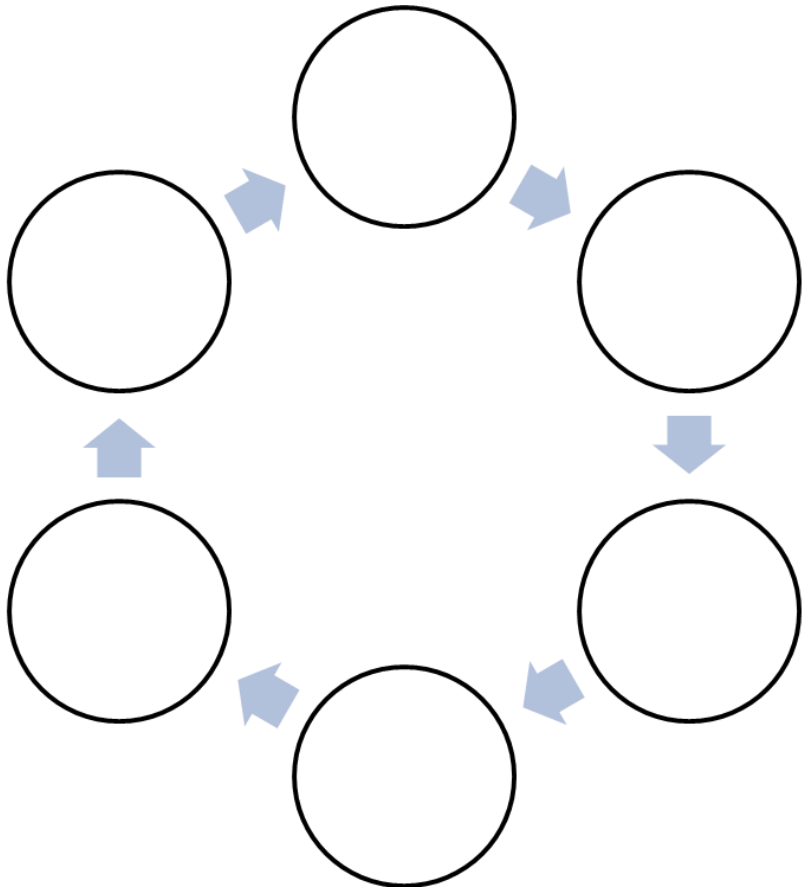
1.Questions to check the initial level of knowledge:
1. General characteristics of the digestive system. Digestion in the mouth.
2. Boundaries of the pharynx.

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

_____

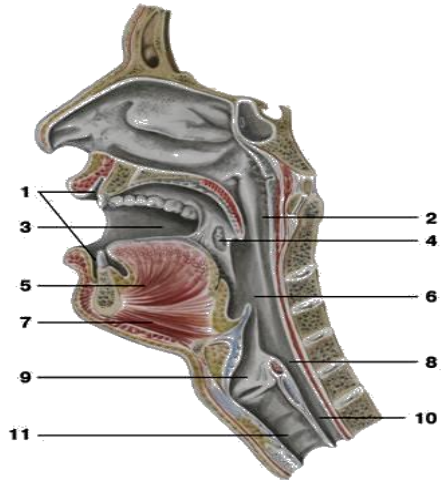
4. What structures form the sky _____

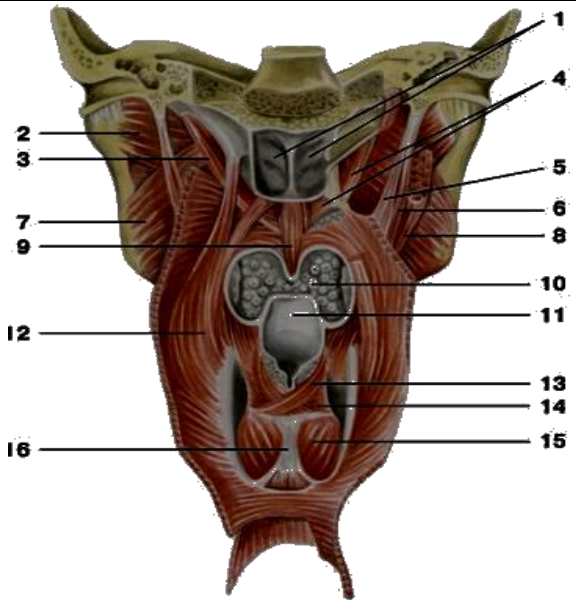
_____

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 GUIDE TO PRACTICAL CLASSES AND EXTRACURRICULAR INDEPENDENT WORK ON THE TOPIC: "ANATOMY AND TOPOGRAPHY OF THE STOMACH AND INTESTINES. ANATOMY AND TOPOGRAPHY OF THE RECTUM. AGE PECULIARITIES. X-ray anatomy".

The variety of forms of pathology of the digestive system provides a thorough knowledge of the morphological and functional features of all its departments, including the pharynx, esophagus of the stomach. Every year the environmental situation worsens. The increase in food nitrates, pesticides, radionuclides lead to an increase in inflammatory processes, toxicoinfections, growth of cancer. Therefore, physicians in many specialties - surgeons, infectious disease specialists, oncologists, radiologists, etc. are required to have sufficient knowledge of morphofunctional peculiarities of all the parts of the digestive system. Knowledge of anatomy of the above mentioned departments are also the basis for understanding the physiological processes occurring in them under the condition of mastering the course of normal physiology. Knowledge of the morphology of the small intestine and large intestine are necessary for understanding the physiological processes (chemical processing of food, absorption, endocrine function) occurring in these parts of the intestine. Elements of topography will form the basis for further study of topographic anatomy and operative surgery. Doctors of many specialties-therapists, infectious diseases, gastroenterologists, radiologists-in their activities use the knowledge gained in the study of this topic in the course of normal anatomy.

I. Objectives:

The student should know	Latin terminology of the topic. 2. The topography of the anterior abdominal wall. 3. Topography of the stomach, its structure and functions. 4. Versions of the form and disease of the stomach depending on body type. 5. Homotopia, sellotape and syntopia different parts of the small and large intestines. 6. The small intestine. 7. The topography, divisions and variants forms of the duodenum. 8. The structure of the wall of the small intestine. 9. Sections of the colon, their topography. 10. Anatomical and histological differences of the colon 11. Structure, topography and position options of the vermiform process. Its functional value. 12. Departments and topography of the rectum. 13. The relationship of all parts of the intestine with the visceral peritoneum.
The student should know	1. Name and show on the wet preparation of the stomach, list the walls of each Department. 2. X-ray to determine the shape of the stomach and be able to explain the relationship with the form of the stomach body type. 3. List the layers of the stomach wall. 4. To name and show on corpse (wet preparation) of the small intestine. 5. Name and show on the corpse and the x-ray of the duodenum, its relationship with the head of the pancreas. 6. Find the place of transition of the duodenum into the small (duodenal-skinny bend). 7. Show on drug exposed longitudinal fold mucous membrane of the duodenum and Vater's nipple. 8. Name and show the cross-section layers of the wall of the small intestine. 9. Explain the structural features of the mucous membrane (the presence of villi), based on the function of the small intestine. 10. Name and show on the corpse, x-ray departments of the colon and their topography. 11. To name and show on the preparation of the external features of the colon (longitudinal ribbon, haustra and processes of the serous membranes). 12. Find the Appendix on the drug, explain the possible options for its position and the projection of the pain point in inflammation on the abdominal wall. 13. To name and show the final part of the colon, on the opened preparation to show and explain the value of anal sinuses (sinuses). 14. Explain the value of lymphoid tissue (single and group follicles) in the mucous membrane of the entire gastrointestinal tract. 15. Analyze the features of each of the layers of the wall along the bowel.
The student must possess	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.Phylo-and ontogenesis of the digestive system

b) of the preceding:
1.The main functions and stages of development of the digestive system.
2.The General plan of the structure of the digestive system.
3. The structure of the digestive tube wall.

C) from the current lesson:

1. The structure of the stomach (parts, shape, structure, wall, sphincters).
2. The locking apparatus of the stomach.
3. Departments of the small intestine, their characteristics.
4. Departments of the large intestine, their characteristics.
5. Sections of the rectum, their characteristics.
6. The ratio of organs (stomach, intestines) to the peritoneum.

III. Object of study:
The corpse with the opened abdominal cavity, a complex of bodies on a shore, a skeleton, preparations of a stomach (unopened and opened).
The complex of organs - the stomach, duodenum, liver, pancreas, hidden duodenum, preparations of the mucous membrane of various parts of the intestine, the preparation of the ileocecal valve of the rectum together with the organs of the genitourinary system, the preparation of the opened rectum, sagittal cut of the pelvis.

IV. Information part:
The stomach is located in the abdominal cavity, in the epigastric region and the left hypochondrium. Fixation of the stomach is provided by the ligaments of the peritoneum: gastrointestinal, hepatic-gastric, gastrointestinal, gastrointestinal. The stomach itself is a significantly expanded portion of the digestive tube, has different shapes depending on the type of physique. In the stomach there are: the cardiac part, the arch, the body and the pyloric part, which in turn is divided into a pyloric cave and a pyloric canal. All these parts, as well as the shape of the stomach should be considered on x-rays.
The structure of the stomach wall: relief of the mucous membrane, gastric fields with openings of the excretory ducts of the glands. Numerous glands that produce gastric juice, at the site of localization and structural features are divided into partial, proper gastric and pyloric.
The muscle shell has three layers – longitudinal (external), circular (average) and internal oblique. The circular muscle layer in the area of the gatekeeper, which, together with the fold of the mucous membrane (pylorus flap) separates the cavity of the stomach and duodenum. The outer cover of the stomach, serous membrane, is a visceral leaf of the peritoneum, covering it intraperitoneal.
The intestine is part of the gastrointestinal tract, starting from the gatekeeper of the stomach and ending with the anus. In the intestine, digestion and absorption of food occur, some intestinal hormones are synthesized, it also plays an important role in immune processes. Located in the abdomen.
Anatomically, the following segments are isolated in the intestine: small intestine (lat. enterum);
colon.
The small intestine is the part of the human digestive system located between the stomach and the large intestine. In the small intestine, mainly the digestion process takes place. The small intestine is called the small intestine because its walls are less thick and strong than the walls of the colon, and also because the diameter of its inner lumen, or cavity, is also less than the diameter of the lumen of the colon.
In the small intestine, the following sub-divisions are distinguished: the duodenum; the jejunum; the ileum.
The length of the small intestine varies between 160-430 cm; in women it is shorter than in men. The diameter of the small intestine in the proximal part on the average equal to 50 mm, the distal portion of the intestine it is reduced to 30 mm Skinny and ileum are mobile, are intraperitoneal (IP) and have the mesentery, representing duplicator of the peritoneum. Between the leaves of the mesentery are nerves, blood and lymph vessels, lymph nodes and fatty tissue.
The large intestine is the lower, terminal part of the digestive tract in humans, namely the lower part of the intestine, in which there is mainly the absorption of water and the formation of food slurry (himus) decorated feces. The large intestine is called the large intestine because its walls are thicker than the walls of the small intestine due to the greater thickness of the muscular and connective tissue layers, and also because the diameter of its inner lumen, or cavity, is also greater than the diameter of the inner lumen of the small intestine.
In the large intestine, the following sub-divisions are distinguished:
the cecum with a vermiform Appendix; the colon with its sub-divisions: the ascending colon, the transverse colon, the descending colon, the sigmoid colon, the rectum, with a wide part - the ampoule of the rectum, and the terminal tapering part - the anal canal, which ends with the anus.
The colon has a length equal to an average of 1.5 mm, its diameter in the initial section is 7-14 cm, in the caudal-4-6 cm.
The large intestine begins in the right lower part of the abdominal cavity (the cavity of the right hip joint), rises up into the liver area, then bends to the left and, moving to a horizontal position, crosses the abdominal cavity slightly above the navel. In the left side of the peritoneum, reaching the spleen, it bends down and falls into the cavity of the left hip joint.
From the cecum departs vermiform Appendix (Appendix), which is a vestigial organ, which, according to some authors, as a lymphoid organ has important functional significance. The transition of the ascending colon to the transverse colon was called the right, or hepatic, bend of the colon, the transition of the transverse colon to the descending-left, or splenic, bend of the colon.
The rectum represents the end of the colon and the end of the digestive tract.
The rectum consists of two parts: the pelvic and perineal:
the pelvic area is located above the diaphragm of the pelvis. It is isolated kadanwari Department and an amp. The pelvic part forms a sacral bend in the sagittal plane (respectively, concavity of the sacrum). There may also be one or more non-permanent bends in the frontal plane. The diaphragm of the pelvis the colon makes the second bend, with the concavity backwards. The transition in the crotch Department formed perineal flexure, flexura perinealis. The length of the pelvic floor is approximately 10-14 cm;
the crotch Department is under the diaphragm of the pelvis and represents the anal canal. The length of the crotch of the Department is approximately 4 cm Perineal division ends with the anus

Age features

The stomach of a newborn has the shape of a cylinder, horn or hook. The divisions of the stomach are weak, their formation is completed to 8 years. A significant part of the newborn's stomach is located in the left hypochondrium and is covered by the left lobe of the liver. With a decrease in the left lobe of the liver, the stomach approaches the anterior abdominal wall and shifts to the epigastric region. The mucous membrane is relatively thick, folds are high. The number of holes in the gastric fields increases from 200,000 to 700,000 by the 3rd month of life, by 2 years-up to 1 million, by 15 years – up to 4 million. The muscular coat is poorly developed, if artificial feeding is stretched.

The small intestine of the newborn has a length of 1.2-2.8 m. the increase in the length of the intestine lasts up to 10 years, when it acquires the size of an adult. The duodenum in a newborn has a ring-shaped form, its bends are formed later. Duodenal glands of small size, less extensive than that of an adult. In the mucous membrane of the jejunum and ileum folds and villi are weakly expressed. Poorly developed muscle layer. In the colon of the newborn no of haustra colon and omental appendages. By 6-7 years there is a final formation of the colon.

The cecum of the newborn is located above the wing of the Ilium. In the right iliac fossa, the intestine descends to 14 years.

Ileocecal opening in a newborn ring-shaped or triangular, gaping. In children over the year it becomes slit-like. The mucous membrane of the Appendix contains a large number of lymphoid nodules. The greatest development they reach out to 10-14 years. The ascending and transverse colon is covered in the newborn liver. In adolescence it acquires a typical adult structure.

The sigmoid colon of a newborn is located high in the abdominal cavity. To 10 years descends into the pelvic cavity.

The rectum of a newborn is cylindrical, there are no ampoules and bends, the folds of the mucous membrane are weakly expressed. Ampoule and curves are formed to 8 years. Anal columns and sinuses in newborns are well developed.

X-ray anatomy.

Direct observation of the stomach cavity of the patient is possible with the help of an optical device – a gastroscope, introduced through the esophagus into the stomach and allowing to inspect the stomach from the inside(gastroscopy). Gastroscopically determine the folds of the mucous membrane, which twist in different directions, resembling the relief of the cerebral gyrus. Normally, the blood vessels are not visible. You can see the movement of the stomach. These gastroscopy data complement x-ray examination and allow to study more subtle details of the structure of the gastric mucosa.

In x – ray examination, the initial part of the duodenum-ampoule, has the form of a triangular shadow facing the base to the gatekeeper, from which at the time of reduction of the latter is separated by an enlightenment corresponding to the reduced gatekeeper. The diameter of the ampoule is larger than the rest of the duodenum. X-ray of the border: from the enlightenment to the designated gatekeeper to the top of a triangular shadow of her. The mucous ampoule, as in the gatekeeper, has longitudinal folds, while the rest of the folds are circular.

X-ray examination shows the shadows of the loops of the small intestine. Loops of the jejunum are located part horizontally, part vertically, on the left and in the middle of the abdominal cavity. Loops of ileum are located in the region of the right iliac fossa and are often vertical and oblique arrangement, forming conglomerate.

The relief of the mucous membrane. In the jejunum, transverse folds give the outer contours of the shadow a feathery character, which is a characteristic feature of the small intestine; in determining the phase of peristalsis, as in the stomach, the formation of longitudinal and oblique folds is observed. In the ileum, as you approach the large number of folds increases. Longitudinal folds form troughs and channels for the passage of food, and the transverse somewhat delay its progress. As a result of the movement of all these folds, a variety of radiological pictures are obtained.

X-ray examination of the colon in a strong reduction of the longitudinal muscles of any part of length becomes smaller, and haustra clearly marked. When relaxation of the muscles and the overflow lumen of the intestine contrast with a mass of gaultry smoothed and as a characteristic feature of the colon, temporarily disappear.

V. Practical work:

Task № 1. On a corpse with an opened peritoneum cavity or on a complex of organs, consider and consistently trace the organs of the digestive system located in the abdominal cavity. To do this, under the diaphragm, find the abdominal part of the esophagus, passing into the stomach. Note that to the right of the stomach is the liver, on the lower surface of which lies the gallbladder, and to the left, in the left hypochondrium, is the spleen. See how the stomach continues into the duodenum. Pay attention to that. that only the upper part of it is visible, because on its greater extent, the duodenum (to the place of transition to the second part of the small intestine - skinny) lies in the retroperitoneal space, i.e. is covered with the peritoneum on the one hand. In order to consider the final part of the duodenum, it is necessary to lift up the transverse colon, lean and ileum to the right. Consider the mesentery of the small intestine. Find the place of transition of the ileum to the colon in the right iliac fossa. Next, consider the part of the colon,which allocate three departments: blind, colon and straight. In the colon, find the ascending colon, which begins immediately after the confluence of the ileum into the colon and lies to the right of the loops of the small intestine. Consider the place of transition of the ascending colon to the transverse colon. At this point, the colon forms its right bend. Pay attention to the fact that the transverse colon, passing into the descending colon, forms its left bend, which is much higher than the right bend of the colon. Show the descending colon to the left of the loops of the small intestine and, following it down, find the sigmoid colon, which is located in the left iliac fossa. Note that the sigmoid colon, descending into the pelvic cavity, passes into the rectum, the Rectum lies in the pelvis anteriorly from the sacrum and behind the uterus (in women) or behind the bladder and prostate (in men).

Studying the organs of the abdominal cavity, note that its walls and organs are covered with a serous membrane, the peritoneum. The peritoneum covers the organs are not the same. There are organs covered with the peritoneum on all sides-intraperitoneal-but the stomach, jejunum and ileum, transverse colon, Sigma-prominent colon, spleen); on three sides - mesoperitoneal (liver, ascending and descending colon); on the one hand - extraperitoneal (most of the duodenum, pancreas).

The task № 2. The complex bodies on the shore to find the stomach, identify its parts and sides (front and back walls, large and small curvature, the bottom or arch, body, cardiac and pyloric part, pylorus). Pay attention to the ratio of the stomach to the peritoneum (intraperitoneal) and its ligamentous apparatus (gastrointestinal, gastrointestinal, hepatic-gastric diaphragmatic-

gastric ligament). On the skeleton, determine the location of the inlet of the stomach (cardiac) and outlet (pyloric opening). On the preparation of the opened stomach, study the structure of its wall (mucosa, submucosa, muscle and serous membranes).
Task number 3. On the corpse with an opened abdominal cavity and a complex of organs, study the position of the small intestine, show its parts: the duodenum, the jejunum and the ileum. Consider the position of the duodenum in relation to the pancreas, the square lobe of the liver and the right kidney, and the complex of organs examine the parts of the duodenum: upper, descending, horizontal, ascending. On the corpse, pay attention to the ratio of the duodenum to the peritoneum (extraperitoneal, only the initial and final parts of the organ are covered with the peritoneum on all sides). Study the features of the relief of the duodenum mucosa on a separate preparation of the mucous membrane, consider the confluence of the common bile duct and pancreatic duct.
The task № 4.On a corpse with an open abdominal cavity and a complex of organs, examine the position of the jejunum and ileum in the abdominal cavity. Compare the diameter and length of the jejunum and ileum. Check the box for intraperitoneal position. On the preparations of the mucous membrane, examine the topography of the mucous membranes of the bowel. Pay attention to the severity of the folds, their nature, villi, find group lymphoid follicles on the mucous membrane of the ileum.
The task № 5. Go to the study on the corpse of the position of the colon in the middle and lower floors of the abdominal cavity. Name and show parts of the colon: blind, colon and straight. In the colon, select its sections: ascending, transverse, descending, sigmoid. Pay attention to the relation to the peritoneum of the colon, with the select departments, having a mesentery (transverse colon, sigmoid colon and upper third of the rectum). Mark the length and diameter of the colon, consider the outward signs of colon: colon (haustra, tape and packing processes. On isolated preparations of the colon, study the structure of the mucous membrane.
Task number 6. On individual drugs, study the structure of the cecum and rectum. In the cecum, find the ileocecal valve, determine the position of the Appendix (lateral, medial or ascending), its opening, the position in relation to the peritoneum, in the rectum, find its parts (ampoule, anal canal, pelvic part, anus), external and internal sphincters, emphasize the features of the structure of the layers of the rectum of the mucosa, submucosa, muscle and serous).

VI. Control question:
1.Name the stomach area and specify their boundaries.
2.Name the holes, parts, walls and edges of the stomach.
3.Where is the conventional boundary between the body and the pyloric part of the stomach?
4.In which departments is divided into the pyloric part?
5.List the stomach lining.
6.What education is located on the surface and in the thickness of the mucous membrane of the stomach?
7.What are the main options for the shape and position of the stomach. What body types do they match?
8.Specify the length of the small intestine in adults, name its departments. Which of them belong to the mesenteric part of the small intestine?
9.Specify the length of the duodenum, name its parts, describe the skeletotopy of each part.
10.As covered by the peritoneum and part of the duodenum?
The anatomical entities they border?
11.What is the name and where is the place of transition of the duodenum into the jejunum?
12.What are the options for the shape and position of the duodenum.
13.List the membranes of the small intestine. What are the layers of her muscle membrane?
14.What education is located on the surface and the thickness of the mucosa of the small intestine?
15.Specify the length of the colon, name its parts. In what area of the abdomen is each of them?
16.List the signs that distinguish the colon from the small intestine in appearance.
17.List the lining of the colon. Specify the features of the structure of the mucous membranes and muscle membranes colon.
18.How are the different parts of the colon covered by the peritoneum? Which ones have a mesentery?
19.Describe the structure of the ileocecal valve. Specify its value.
20.Name the parts, the curves of the rectum.
21.Describe the features of the structure of the rectal mucosa
VII. Learning objective:
Problem № 1 when x-ray examination of the stomach found that the body has the shape of a fishing hook.
1. What type of a Constitution this form of the stomach?
2. What is the peculiarity of the position of the body in this form?
Answer:
1. The shape of the fish hook is typical for the stomach of people of mesomorphic body type.
2. With this form of organ, the body of the stomach is almost vertical, then sharply bends to the right, so that the pyloric part occupies an ascending position on the right near the vertebral column. Between the descending and ascending parts formed an acute angle open up. The General position of the stomach is oblique.

Problem number 2. During the examination of the intestine in one of its departments found numerous use of protrusion wall (haustra).
1. What part of the intestine are we talking about?
2.What other distinctive features are characteristic of this Department?
Answer:
1. These features are characteristic of the colon.
2. In addition to the baggy protrusion (gaustr), separated from each other by deep furrows, on the outer surface of the colon there are three longitudinal strands - bands of the colon (mesenteric, omentum, - free), formed as a result of the concentration

of the longitudinal muscle layer. In addition, on the outer surface of the colon along the free and omental bands are finger - shaped protrusion of the serous membrane containing adipose tissue-omental processes.

VIII. Control tests:
1. Anatomical formations located behind the stomach:
a-packing bag;
b-transverse colon and mesentery;
b-left kidney;
g-pancreas.
Answer: a, b, C, d
2. For people of mesomorphic body type is characterized by the shape of the stomach in the form of:
a-horns;
b-hook;
in-stocking;
Mr. spindle.
Answer:b
3. The stomach has a part:
a-pyloric
b-front
b-cardiac
g-medial
Answer: a, b
4. In the area of the bottom and body of the stomach are folds:
a-transverse folds;
b-ring-shaped folds;
b-oblique folds;
g-longitudinal folds.
Answer: a, b, g
5. From the large curvature of the stomach originate ligaments:
a-gastro-diaphragmatic;
b-hepatic-gastric;
in - stomach-colon;
g-gastrointestinal.
Answer: a, b, C, d
6. The common bile duct and pancreatic duct open into the next part of the stomach:
a - the ascending part of the;
b-descending part;
in the upper part;
g-horizontal part.
Answer: b
7. Specify the parts of the mesenteric small intestine.
a-ascending part of the duodenum
b-ileum;
b-jejunum.;
Mr. descending part of the duodenum.
Answer: b, C
8. The transverse colon is characterized by structures:
a-lymphoid plaques
b-muscle bands
in – austri
Mr. omental appendages
Answer: b, C, d
9. In the composition of the large intestine there is no intestine:
a-rim
b-blind.
I-iliac.
g-straight
Answer:
10. Specify the parts of the colon having a mesentery:
a-sigmoid colon;
b-transverse colon;
b-ascending colon;
g-cecum.
Answer: a, b

IX Анатомическая терминология

Русское название	Латинское название
stomach	gastr (ventriculus)

front wall	paries anterior
back wall	paries posterior
large curvature of the stomach	curvature gastrica (ventricularis) major
small curvature of the stomach	curvatura gastrica (ventricularis) minor
cardiac part	pars cardiaca
the bottom of the stomach	fundus gastricus (ventricularis)
the body of the stomach	fornix gastricus (ventricularis)
the body of the stomach	corpus gastricum (ventriculare)
gatekeeper (pyloric) part	pars pilorica
gatehouse cave	cavum pyloricum
intestine	irttestinum tenue
the intestinal villi	villi intesrinales
intestinal glands	gll intesrinales
single lymph follicles	folliculi lymphatiei solitarii
duodenum	duodenum
jejunum	jejunum
ileum	ileum
colon	Imestinum crassum
caecum	caecum.
ileocecal valve	valve ileocaecalis
colon	colon
ascending colon,	colon ascendens
right bend of the colon	flexura coli dextra.
transverse colon	colon rransversum
left bend of the colon	flexura coli sinisrra
descending colon	colon descendens
sigmoid colon	colon sigmoideum
haustra colon	haustra coli
processes	appendices epiploicae
tapes	taeniae
mesenteric tape	taenia mesocolica
packing tape	taenia omentalis
free tape	taenia libera
rectum	rectum
sacral bend	flexura sacralis
perineal bend	flexura perinealis
ampulla of the rectum	ampulla recti
anus	anus

X. Preparations and manuals. Corpse with open abdominal cavity, the complex of organs, the skeleton, the drugs of stomach, colon and small intestine. Preparations
Tests. Textbook. Atlas of human anatomy. Tables. Radiographs

EXTRACURRICULAR INDEPENDENT WORK.
Methodical recommendations to out-of-class independent work on the topic:
ANATOMY AND TOPOGRAPHY OF THE STOMACH.

1.Questions to check the initial level of knowledge:
1. General characteristics of the digestive system. Lymphoid formations.
2. The development of the stomach.
3. The ratio of the stomach to the peritoneum.

2.Targets

The student needs to know:
1. The structure of the stomach, its departments. 2. Holotape, syntopia, sellotape stomach.
The student must be able to:
1. Show on the preparation of the stomach, its parts (body, bottom large, small curvature, cardiac and pyloric parts). 2. Show the front of the rear wall. 3. Show the peritoneal ligaments of the stomach: hepatic-gastric, gastro-splenic, gastrointestinal, diaphragmatic-gastric.

III. Assignment for independent work:

1. Append:

A) what folds are located in the bottom and body of the stomach _____

_____

B) Anatomical formations with which the anterior surface of the stomach is in contact _____

_____

_____

IV. Questions for self-control:

1. What age features does the stomach have _____

_____

2. What types of glands are present in the gastric mucosa and what they produce _____

_____

3. What are the anatomical features of the stomach wall allow a person to take a significant amount of food _____

_____

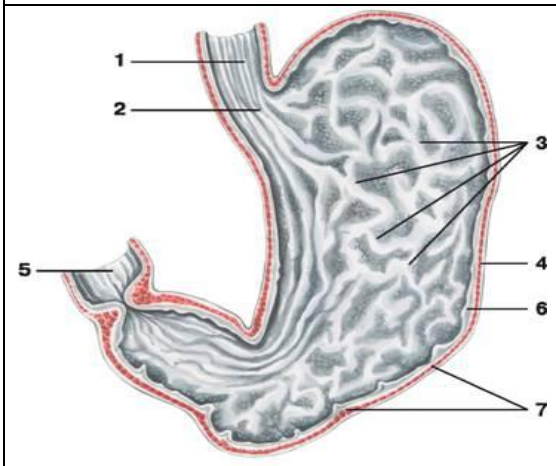
4. What are the anatomical formations at the site of the transition of the stomach into the duodenum _____

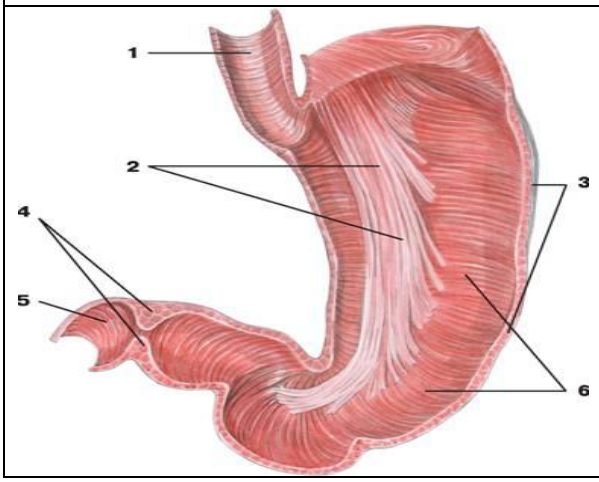
_____

5. What ligaments originate from the great curvature of the stomach _____

_____

V. Make symbols for figures:

Слизистая оболочка желудка	
	1. 2. 3. 4. 5. 6. 7.

Мышечная оболочка желудка	
	1. 2. 3. 4. 5. 6.

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

1.Questions to check the initial level of knowledge:

1. General characteristics of the digestive system.
2. Departments of the large and small intestine, their topography and structure.
3. The structure of the intestinal wall and the attitude to the peritoneum.

2.Targets

The student needs to know:
1. Departments of small and large intestine. 2. Features of the structure of the wall of the small and large intestine (villi, folds, lymphoid elements, tape, packing processes and haustra). 3. Relationship to the peritoneum.
The student must be able to:
1. Show the duodenum and its parts (upper, descending, horizontal, ascending). 2. Show large papilla of duodenum (papilla of Vater). 3. Show the jejunum and ileum. 4. Show sections of the large intestine (blind, colon, straight). 5. Show the vermiform Appendix – an Appendix to his hole

III. Assignment for independent work:

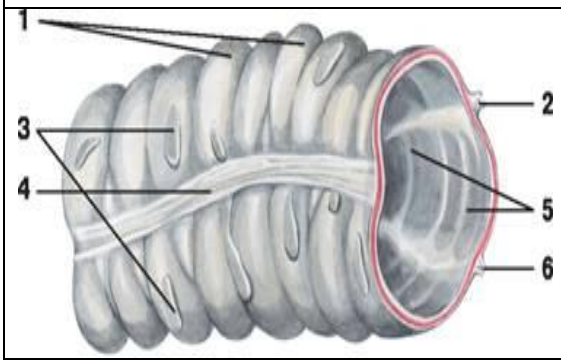
1. Append:
(A) parts of the colon having a mesentery _____
_____
B) sections of the intestine, whose walls of lymphoid plaques (Pairavi)
_____

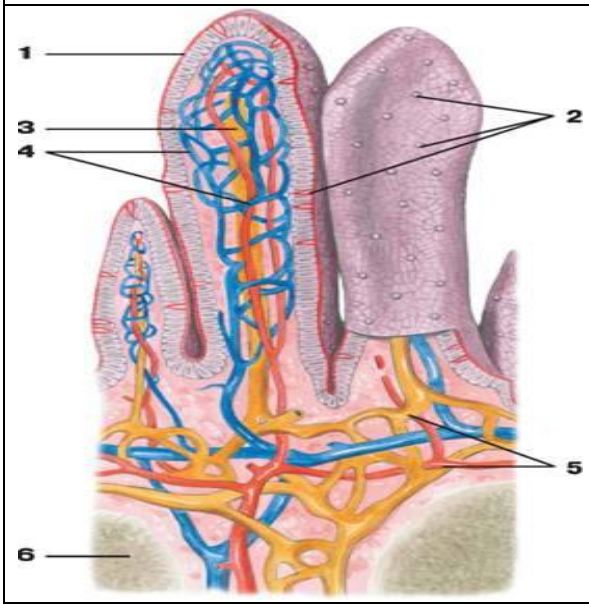
2. Fill in the table: "differences between large intestine and small intestine»:

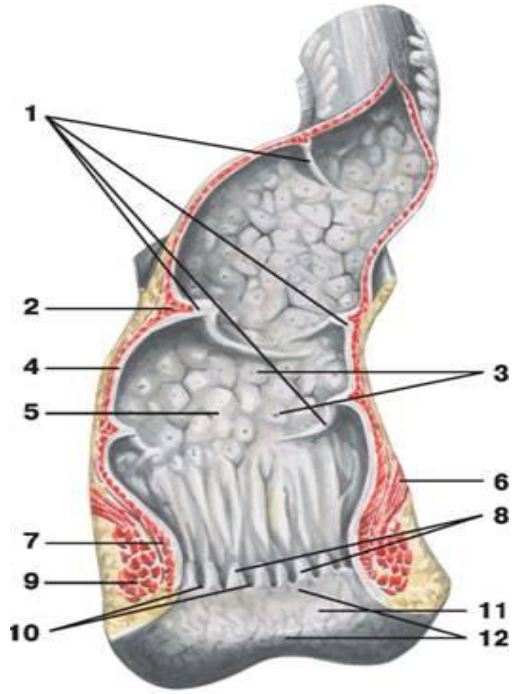
Signs	small intestine	large intestine
1. Diameter		
2.Color.		
3.Surface		
4.Fat processes		
5. Villuses		
6. Lymphoid follicle		
7. Folds of mucous membrane		

IV. Questions for self-control:
1. What departments has a mesenteric part of the small intestine _____
_____
2. What structures are characteristic of the transverse colon _____
_____
3. What form of the duodenum is most common _____
_____
4. What function does the Appendix perform? _____
_____
5. Specify the location of the omental processes of the colon _____

V. Make symbols for figures:

Large intestine	
	1. 2. 3. 4. 5. 6.

The villi of the small intestine	
	1. 2. 3. 4. 5. 6.

Rectum	
	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.

METHODICAL RECOMMENDATIONS TO PRACTICAL CLASSES ON THE SUBJECT:
ANATOMY AND TOPOGRAPHY OF LIVER, PANCREAS, PERITONEUM, GALL BLADDER.

The liver and pancreas, being the largest glands, in addition to participation in the digestive process, provide a number of other important functions of the body. Thus, the liver performs a barrier function, synthesizes blood clotting factors, participates in all types of metabolism. The pancreas, being a mixed gland, performs an endocrine function, producing insulin and a number of other hormones. To understand the functions of the abdominal and pelvic cavities, it is necessary to know the structure of the peritoneum and its derivatives, the relationship between them. For doctors, gastroenterologists, infectious disease specialists etc. absolute knowledge of the peculiarities of the course of the parietal and visceral peritoneum, the structural features of the peritoneal cavity (pockets, bags, channels), will allow to trace the spread of the inflammatory process, and to choose the optimal tactics of treatment of the disease. The knowledge gained by students in the study of this topic at the Department of human anatomy, will serve as the basis for further development of the course of physiology, pathological physiology, topographic anatomy and operative surgery, abdominal surgery and other clinical disciplines.. Mastering the basics of x-ray anatomy in the study of the digestive system will provide better assimilation of theoretical data, facilitate, in the future, training at the Department of radiology

I. Objectives

The student needs to know:	1)Homotopy of the abdominal cavity. 2) the Structure and development of the peritoneum. 3) Stroke of peritoneum. 4) the ratio of organs to the peritoneum. Projection of abdominal organs. 5) Peritoneal ligaments-liver, stomach, intestines. 6)Channels, fossa and sinuses of the abdominal cavity. 7)large and small gland. 8)of the Gland hole and its boundaries. 9) Recesses of the pelvis. 10)the Topography of the liver surfaces, lobes, divisions, and cords. Skeletotopy of the liver. 11)the Contents of the gate of the liver. 12) Bile ducts, gallbladder, Right and left hepatic, cystic and common bile ducts. 13)peculiarities of structure and blood supply of the liver, a wonderful network of liver, the Internal structure of the liver. 14) topography of the pancreas, the attitude to the peritoneum. Function and value of the pancreas. 15)Islet part of the pancreas. 16) The ratio of the liver to other organs. The pitting of the liver. 17)the Difference of the abdominal cavity from the abdominal. 18)the Difference of the abdominal cavity men and women.
The student needs to know	1) Show on native drug and call on Latin share of liver, its the surface. 2) Show and name the Latin gate of the liver, the contents of the gate of the liver. 3)to call Latin ligament of the liver. 4 Show and name Latin for the greater and lesser glands, explain their formation. 5) Show and name the Latin lower Vena cava on the liver and explain its meaning. 7)Show and name the Latin departments of the pancreas. 8) Show and name in Latin on the lower surface of the liver gallbladder and ducts. 9) to call for Latin in the mucosa of the duodenum 12 of Vater papilla. 10) to call in Latin a large and small omentum. 11) Show and name in Latin ligaments of the liver, mesentery of the small intestine and colon, recesses and ligaments of the pelvis, sinuses and channels of the peritoneal cavity, mesentery root of the small intestine, folds of the anterior abdominal wall. 12) Show and name the Latin gland opening and its boundaries. 13) to call Latin round ligament of the liver, lobe of the liver. 15) Explain the concept of "Peritoneal cavity" and "abdominal cavity"; their difference.
The student must possess:	1)техника вскрытия органов. 2) знание гомотопии и печени. 3) умение работать с медицинскими инструментами. 4)возможность ревизии брюшной полости 5) Латинская терминология по теме.

II. The required level of knowledge:

(a) related disciplines:

1) Microscopic structure of the liver and pancreas.
2) Education and move bile.
3) Excretory and endocrine apparatus of the pancreas.
4) liver Functions.

b)of the preceding:

1) the General anatomy of the digestive system, the course of the food lump.
2) The General structure of serous membranes.

3) floors of the abdominal wall.
4) projection of organs on the anterior abdominal wall.
C) from the current lesson:
1) General characteristics of the peritoneum.
2) peritoneal Cavity and packing bag.
3) features of blood supply of the liver. Wonderful network of the liver.
4) the Structure of the intestine.
5) Departments of the pancreas, their topography.

III. Object of study:
1. Corpse opened
2. Organocomplex
3.A set of tables, and radiographs.
IV. Information part.
The liver is the largest digestive gland, about 2.5% of body weight, an average of 1.5 kg in adult men and 1.2 kg in women, located in the upper right part of the abdominal cavity. It has right and left lobes, diaphragmatic and visceral surfaces, lower(front) edge. The diaphragmatic surface has 2 lobes - right and left .The visceral surface contains 4 lobes –left, right, square and tail, separated by a furrow ,the inferior Vena cava, the fossa of the gallbladder, the slit of the venous ligament, the slit of the round ligament. Ligament liver: coronary, falciform, round, triangular, hepatoduodenal, hepatic-intestinal, renal and hepatic. Liver structure: the complex structure of the liver is perfectly adapted to perform its unique function. The lobes of the liver consist of small structural units-lobules. In the human liver there are about 100 thousand, each of them 1.5-2 mm long and 1-1.2 mm wide. Lobule consists of hepatic cells-hepatocytes. Hepatic lobules are supplied with blood from the branches of the portal vein and the hepatic artery , and the bile formed in the lobules enters the tubular system, and from them into the bile ducts and is excreted from the liver.
The liver has a very developed venous system, both in length and in capacity. It is divided into the portal vein and the hepatic vein system. The peculiarity of the portal vein is that it begins and ends with the capillaries. If the hepatic artery delivers blood rich in oxygen to supply liver tissue, the portal takes blood from the entire gastrointestinal tract and spleen and is the main vessel determining the function of the liver. It has one of the main anastomoses (bypass ducts normally closed) with venous rectal: upper, middle and lower. Thanks to these venous compounds, the liver plays an important role in the activity of the kidneys, spleen, heart, etc.
The pancreas (pancreas) is a large digestive gland of a mixed type. It has exocrine and endocrine parts. As an exocrine gland it produces daily 500-700 ml of pancreatic juice it contains proteolytic enzymes trypsin, chymotrypsin and amylolytic enzymes (lipase and others). The endocrine part in the form of small cell clusters(pancreatic islets), produces hormones that regulate carbohydrate and fat metabolism (insulin and others). The length of the pancreas in an adult is 14-18 cm, width 6-9 cm, thickness 2-3 cm, weight is 85-95 g. The topography extends from the top left of level 12 of the thoracic vertebra obliquely to the right down to level 1-3 of the lumbar vertebra. Have tumors distinguish between head, body and tail. The main duct (ductus pancreatic) or... ? the duct goes into the thickness of the gland, begins in the area of the tail, passes through the body and the head, in the course takes small interlobular excretory ducts. It flows into the lumen of the descending part of the duodenum, previously connected to the bile duct on its large papilla. In the area of the head of the gland, an independent additional duct (Santorini duct) is formed, it opens into the lumen of the duodenum on its small papilla.
The peritoneum(peritoneum). The abdominal cavity from the inside is lined with intra-abdominal fascia(fascia endoabdominalis). The peritoneum, its wall bag, also covers the inner surfaces of the abdomen: the front, side, back and top. The parietal peritoneum, peritoneum parietale, passes into the internal leaf, peritoneum visceral, which covers many organs located in the abdominal cavity. Between parietal and visceral peritoneal leaves there is a slit-like space-the peritoneal cavity, cavitas peritonea. In the transition of the visceral peritoneum from one organ to another or visceral in parietal(or Vice versa) formed mesentery, glands, ligaments and folds, as well as a number of more or less isolated spaces: bags, grooves, grooves, sinuses. Organs located in the abdominal cavity, have a different relationship to the peritoneum: 1)can be covered with the peritoneum on all sides and lie intraperitoneal; 2)can be covered with the peritoneum on three sides - mesoperitoneal; 3) can be covered with the peritoneum only on one side-extraperitoneal.
Transversely, the colon and its mesentery divide the abdominal cavity into two floors: upper and lower. The upper floor houses the liver, stomach, spleen, in the lower-skinny and iliac, ascending and descending colon and cecum. In the upper floor, the peritoneal cavity forms 3 bags: hepatic, pancreatic, omentum.
The hepatic bag, bursa hepatica, is a slit surrounding the right lobe of the liver.
Pancreatic bag, bursa pregastrica, part of the peritoneal cavity in front of the stomach and spleen.
The packing bag, the bursa omentalis, a part of the cavity of the peritoneum which is situated behind the stomach. Its anterior wall is the stomach and its hanging ligaments, the posterior-parietal peritoneum, the upper-caudate lobe of the liver, the lower mesentery of the transverse colon. Right the packing bag communicates with the General cavity of the peritoneal SAC through the omental foramen, foramen epiploicum, limited ligamentum hepatoduodenale front, rear hepatorenale ligamentum, ligamentum duodenorenale bottom and caudate lobe of the liver on top.
Visceral peritoneum from the anterior and posterior surface of the stomach along its large curvature descends downwards, forming the anterior wall of the cavity of the large omentum. Below the transverse colon, the specified anterior wall passes into the posterior wall of the cavity of the large omentum and rises along the posterior abdominal wall , where it passes into the parietal peritoneum. The cavity of the large omentum is slit-like and communicates with the cavity of the omentum bag. Adults have all 4 sheets of the greater omentum are fused and the cavity disappears.
In the lower floor of the abdominal cavity, left and right mesenteric sinuses are isolated . Both sinuses lie between the ascending and descending colon on the sides and the mesentery of the transverse colon-on top. The left and right sinuses are separated from each other by the root of the mesentery of the small intestine. Below the mesenteric sinuses communicate with

the pelvic cavity. Within the lower floor of the abdominal cavity, the peritoneum forms folds and pits. On the back surface of the anterior abdominal wall from the navel downwards (to the bladder) there are 5 umbilical folds. In the middle umbilical fold there is an overgrown urinary duct, in the medial-overgrown umbilical arteries, and in the lateral-the lower epigastric arteries. On either side of the middle umbilical folds are small nadpuzyrnye fossa , fossa supravesicalis, between the medial and lateral folds on each side of the medial inguinal fossa, fossa inguinalis medialis, laterally from the lateral folds –the lateral inguinal fossa, fossa inguinalis lateralis. The peritoneum in the pelvis forms a recess: rectal-uterine in women (Douglas), in men rectum-bladder.

The gallbladder is pear-shaped. The wide end, which extends slightly beyond the lower edge of the liver, is called the bottom. The opposite narrow end of the gallbladder is called the neck, the middle part forms the body. The neck directly continues into the bubble stream, about 3.5 cm long. From the merger formed a common bile duct, bile. The last lies between the two sheets having the back from yourself portal vein. And on the left-common, hepatic artery; then he goes down behind the top, perforates the medial wall and opens together with the duct of the pancreas with a hole in the extension. At the confluence of the circular muscle layer of the duct wall is significantly enhanced, regulating the flow of bile into the lumen of the intestine; in the ampoule there is another sphincter. The length of about 7 cm. The gallbladder is covered with the peritoneum only from the lower surface; its bottom lies to the anterior abdominal wall in the corner between the right and lower edge of the ribs. Lying under the serous membrane of the muscle layer consists of involuntary muscle fibers with an admixture of fibrous tissue. The mucous membrane forms folds and contains many mucous glands. The neck has a number of folds arranged spirally and forming a spiral fold.

Ways of bile excretion. Since bile is produced in the liver around the clock, and enters the intestine as needed. Then there is a need for a storage tank for bile. Such a tank is the gallbladder. Its presence determines the features of the structure of the bile ducts.

The bile produced in the liver flows from it through the hepatic duct. If necessary, it enters the duodenum immediately. If this is not necessary, then his sphincter is in a reduced state and do not let the bile into the intestine. When food enters the stomach and there is a corresponding reflex. There is a reduction in the muscular wall of the gallbladder and at the same time the relaxation of muscles and sphincters, resulting in bile enters the lumen of the intestine.

V. Practical work.

Task № 1.For a better understanding of the structure of the liver you need to clearly know her sellotape, surfaces, borders, lobes. Find the pressure on the surface of the liver from the surrounding organs (right to left): renal, adrenal, colon-intestinal, duodenal, pyloric, gastric.

Also know the deep furrows that divide the liver into 4 lobes. Show right and left longitudinal furrows and transverse-liver gate. Know the vessels entering and exiting the gates of the liver.

The task №2.It is necessary to know the basis of the liver-slices. What do they consist of? What goes between these cells?how the right and left hepatic ducts are formed, as well as the duct of the caudate lobe. How the common hepatic duct is formed.

Task number 3.At autopsy the corpse examine: holotape, syntopia and skeletopy of the pancreas, its component parts. It is necessary to know the endocrine part that secretes the hormone insulin, regulates carbohydrate metabolism, the exocrine part that takes part in the production of intestinal juice. What do the endocrine and exocrine parts consist of?

The task № 4. At autopsy the corpse to examine holotape of the abdominal and pelvic regions. Consider and show the parietal and visceral peritoneum. It is necessary to know what forms the peritoneum in the transition of the parietal to the visceral. Show on the body floors of the abdominal cavity. Know the contents of these floors. Pay attention to the bags on the top floor, to know their topographical location. pay attention to the omental bag, with which it is communicated through the omental opening, know its walls. What is represented by a small gland. Education and the course of the omentum. Know mesenteric sinuses in the lower floor, their topography. What anatomical formations separate the left and right mesenteric sinuses. Know the folds and pits that form the peritoneum on the back of the anterior abdominal wall. Pay special attention to the progress of the peritoneum in the pelvic cavity, as women quite often abscess Douglas space rectouterine.

VI. Control question:

1. Anatomy and skeletotopy of the liver.
2. What depressions are located on the visceral surface.
3. What structures is the lobule of the liver.
4. Name the ligaments in the liver.
5. Where the common bile duct opens.
6. As topographically located pancreas.
7. What functions does the pancreas.
8. What leaves is the peritoneum.
9. What ligament forms the lesser omentum.
10. What formed the walls of the packing bag.
11. What folds are located on the back of the anterior abdominal wall.

VII.Learning objective:

Problem number 1.In the trauma Department delivered a man with a closed abdominal trauma to the right with suspected liver rupture. In which of the following formations of the peritoneum should we expect the accumulation of blood?

Answer: in the rectum-bubble depression. With the rupture of the liver (its right lobe), blood enters the hepatic bag, which is reported through the right rim channel of the middle floor by the peritoneal cavity with the pelvic cavity. In the small pelvis of men, the peritoneum, covering the anterior surface of the rectum and then moving to the posterior wall of the bladder forms a rectal-bladder depression, where blood accumulation should be expected.

Problem number 2. A child wounded in the right half of the breast was taken to the hospital. The wound channel passed through the fifth intercostal space along the mid-thorn line. Which organ suffered a chest wound to the right lung.
Answer: along with the injury to the chest and right lung, the liver suffered.
Problem number 3. The gallstone blocked the entrance to the hepatic-pancreatic ampoule in the area of her sphincter.
Answer: you can expect cholecystopancreatitis.
Problem number 4.The patient was diagnosed with one of the necrotic forms of acute pancreatitis. In which of the peritoneal spaces immediately extends the effusion?
Answer: Packing bag. The anterior and partially lower surfaces of the pancreas are covered with a thin parietal leaf of the peritoneum and together form the back wall of the gland bag, where the effusion extends.
Problem number 5.Operate on a patient for injuries of the liver with hemorrhage into a hepatic bag. What is the boundary and prevents blood from entering the pancreas bag?
Answer: Crescent ligament.
Problem number 6.The patient was diagnosed with retroperitoneal hernia, the gates of which are located in the region of the transition of the left leaf of the mesentery of the sigmoid colon to the parietal peritoneum of the posterior wall of the abdominal cavity. What is the name of the hole that served as the entrance gate for hernias?
Answer: mezhsigmovidnoe deepening
VIII. The control tests.
1. At the gate of the liver is missing :
(A) portal vein
B) hepatic artery
C) hepatic vein
D) common hepatic duct
2. Specify the furrows that limit the tail portion of the liver:
(A) round ligament slit
B) fossa of the gallbladder
C) the gate of the liver
G) the gap of the venous ligament
3. Specify the depression present on the visceral surface of the liver:
(A) gastric
B) esophageal
C) renal
D) cardiac
4.Specify the liver ligaments located on its visceral surface:
A) sickle-shaped
B) round
C) coronal
D) left triangular
5. Specify which organ the head of the pancreas comes into contact with:
(A) mesentery of the transverse colon
B) the stomach
C) right kidney
D) duodenum
6. Specify the position of the pancreas in relation to the peritoneum:
(A) intraperitoneal
B) mesoperitoneal
C) extraperitoneal
D) intraperitoneal position in the presence of mesentery
7. Specify ligaments originating from the large curvature of the stomach:
(A) gastro-diaphragmatic
B) liver-colon
C) gastro-colon
G) the gastro-splenic
8. Specify the walls of the right mesenteric sinus:
(A) anterior abdominal wall
B) ascending colon
C) mesentery root of the small intestine
D) right lobe of liver
9. What organs of the abdominal cavity belong to the peritoneum mesoperitoneal:
(A) sigmoid colon
B) transversal rim
C) vermiform Appendix
D) mesentery of the stomach
10. Specify the structure involved in the formation of the greater omentum:
(A) diaphragmatic-splenic ligament
B) gastro-colon ligament
C) gastro-diaphragmatic ligament
D) mesentery of the stomach

Answers to the tests:

1. b
2.bg
3.ABV
4.bgg
5.G
6.In
7.b
8.B
9.ABG
10.B

IX.Анатомическая терминология:

	Latin	English
1	Hepar	Liver.
2	Lobus hepatis dexter	The right lobe of the liver.
3	Lobus hepatis sinister	The left lobe of the liver
4	Lig.teres hepatis	Circular ligament of the liver.
5	Vesica fellta	Gallbladder.
6	Porta hepatis	Portal fissure.
7	Tunica fibrosa	Serous membrane.
8	Lobuli hepatis	Liver lobules
9	Ductuli biliferi	Biliary ducts
10	Ductuli interlobulares	Interlobular ducts
11	Bilis	Bile
12	Vesica fellea s. biliaris	Gallbladder
13	Fundus vesicae felleae	The bottom of the gallbladder
14	Corpus vesicae felleae	The body of the gallbladder
15	Ductus choledoshus	Common bile duct
16	Ductus hepaticus communis	Hepatic duct
17	Lig.coronarium hepatis	Coronary ligament of the liver
18	Ligg. Triangulare dextrum et sinistrum	Left and right triangular ligaments
19	Vv. interlobulares	Between slices
20	Pancreas	Pancreas
21	Caput pancreatis	The head of the pancreas
22	Processus uncinatus	Hook-shaped process
23	Corpus pancreatis	The body of the pancreas
24	Cauda pancreatis	The tail of the pancreas
25	Incisura pancreatis	Deep cut
26	Ductus pancreaticus	The excretory duct of the pancreas
27	Ductus pancreaticus accessorius	Additional duct
28	Insula	Island
29	Insulae pancreaticae	Pancreatic islet
30	Peritoneum	Peritoneum

X. Preparations and manuals
Preparations and manuals, skeleton, corpse with an open abdominal cavity, complex organs, complex organs: liver, stomach, duodenum, pancreas. Level 2 tests and standards of responses to them. Atlas of human anatomy. Tables.

EXTRACURRICULAR INDEPENDENT WORK.

METHODICAL RECOMMENDATIONS TO OUT-OF-CLASS INDEPENDENT WORK ON THE TOPIC: ANATOMY AND TOPOGRAPHY OF THE LIVER AND PANCREAS.

1.QUESTIONS TO CHECK THE INITIAL LEVEL OF KNOWLEDGE:
1. GENERAL CHARACTERISTICS OF THE DIGESTIVE GLANDS.
2. LIVER AND PANCREATIC FUNCTIONS.
3. TOPOGRAPHY OF ABDOMINAL ORGANS.
4. BILE DUCT.

2.TARGETS

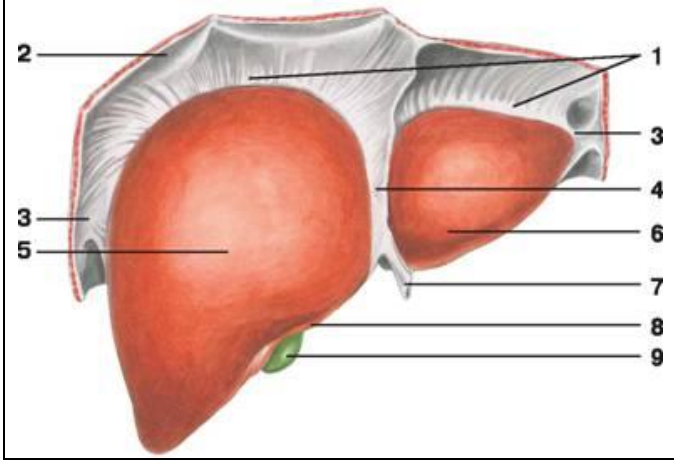
The student needs to know:
1. The structure of the liver. 2. Ligament of the liver. 3. Liver vessels, the principle of blood circulation in the liver. 4. The topography of the pancreas. 5. The structure and departments of the pancreas. 6. The main and additional ducts of the pancreas. 7. Excretory and endocrine parts of the pancreas.
The student must be able to:
1. Determine the position of the liver in the right hypochondrium. 2. To be able to show visceral and diaphragmatic surfaces; edges – bottom and back; shares – right, left, square, tailed. 3. Show ligament of the liver – the round, falciform, coronary, right and left triangular, renal and hepatic. 4. Show on the lower surface of the gallbladder, its parts 5. Show the pancreas, its parts, surfaces, edges and duct.

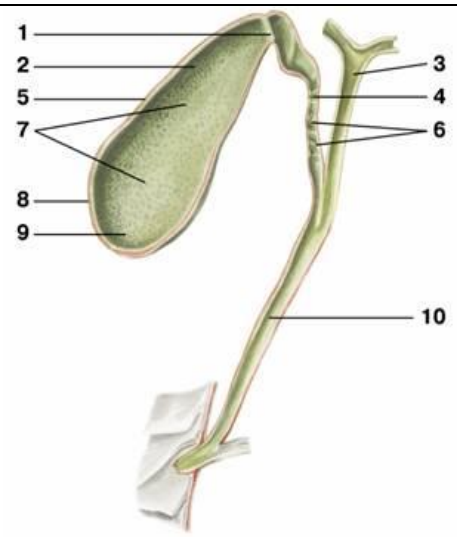
III. Assignment for independent work:
1. Make a diagram of the biliary tract.

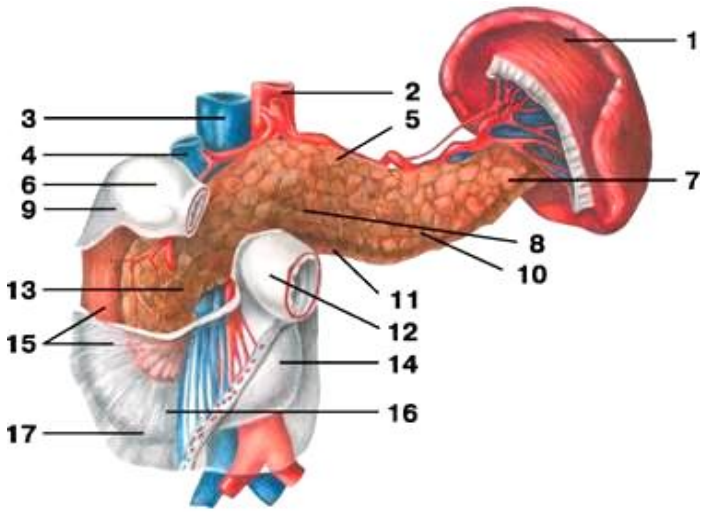
2. Append:
A) what organs does the head of the pancreas come into contact with _____
_____
B) what are the indentations on the left lobe of the liver _____
_____

IV. Questions for self-control:
1. What part of the duodenum opens the common bile duct?
_____
2. At the level of which vertebrae is the pancreas?
_____
3. What part of the duodenum opens the pancreatic duct?
_____
4. What anatomical formations enter the gates of the liver? _____
_____

V. Make symbols for figures:

Diaphragmatic surface of the liver	
	1. 2. 3. 4. 5. 6. 7. 8. 9.

Gallbladder and bile ducts	
	1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

DUODENUM AND PANCREAS	
	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17.

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

1.Questions to check the initial level of knowledge:
1. General characteristics of the digestive system and topography of the abdominal cavity.
2. The structure of the abdominal walls.
3. General characteristics of serous membranes and the ratio of organs to the peritoneum.

2.Targets

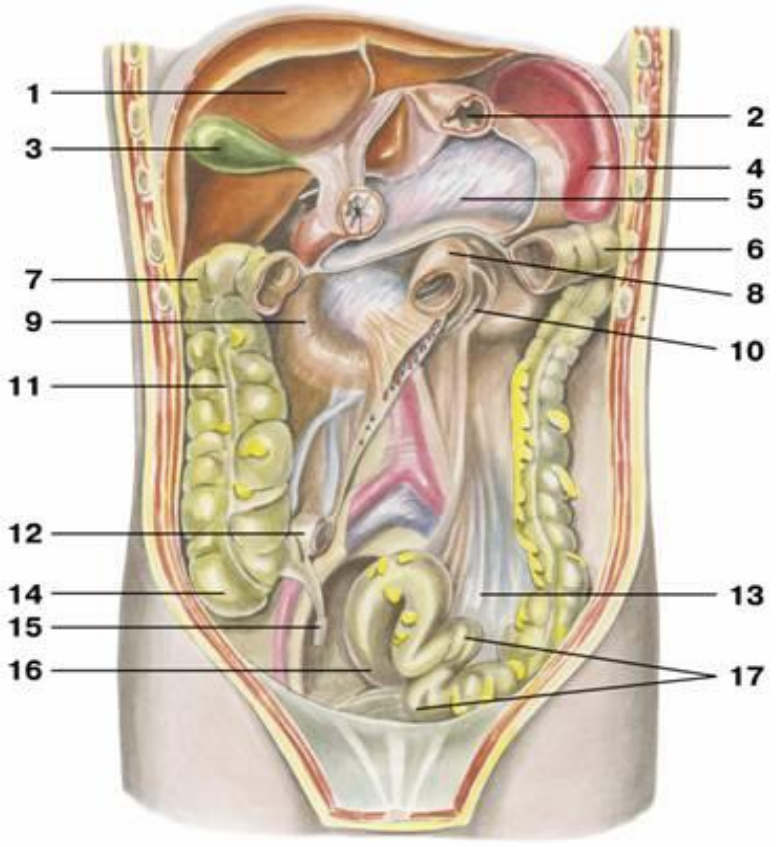
The student needs to know:
1. What is parietal and visceral peritoneum. 2. The difference between the abdomen and abdomen. 3. The ratio of organs to the peritoneum: intraperitoneal, mesoperitoneal and extraperitoneal. 4. Derivatives of the peritoneum: mesentery, glands and ligaments. 5. Ligaments that make up the large and small omentum. 6. Omental bag and its walls. 7. Recess (pockets) of the peritoneum. 8. Pleats and holes on the rear surface of the rear surface of the anterior abdominal wall. 9. Recess in the pelvis.
The student must be able to:
1. Show on the drug abdominal organs. 2. Show bodies with extra – and intra mezoperitonealno. 3. Show bundles that constitute the lesser omentum: hepatoduodenal, hepatic-gastric. 4. Show ligaments, components of the greater omentum: diaphragmatic-gastric, gastro-splenic, diaphragmatic-splenic, gastro-

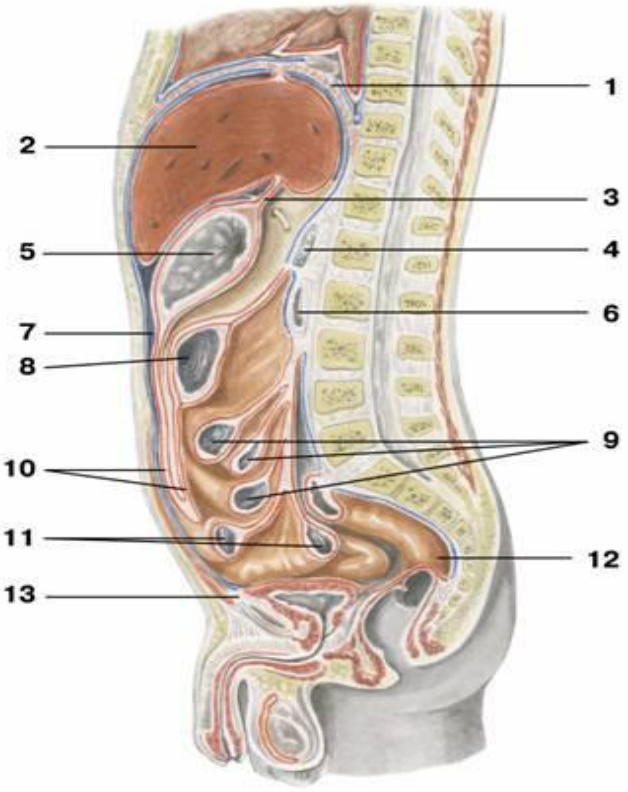
colon.
5. Show the gland opening and its boundaries.
6. Packing bag and its wall.
7. The deepening of the peritoneum (lower and upper duodenum, upper and lower ileum-cecal, mesihovina).
8. The recess in the pelvis: rectouterine (Douglas) in women and vesico-rectal in men.

III. Assignment for independent work:

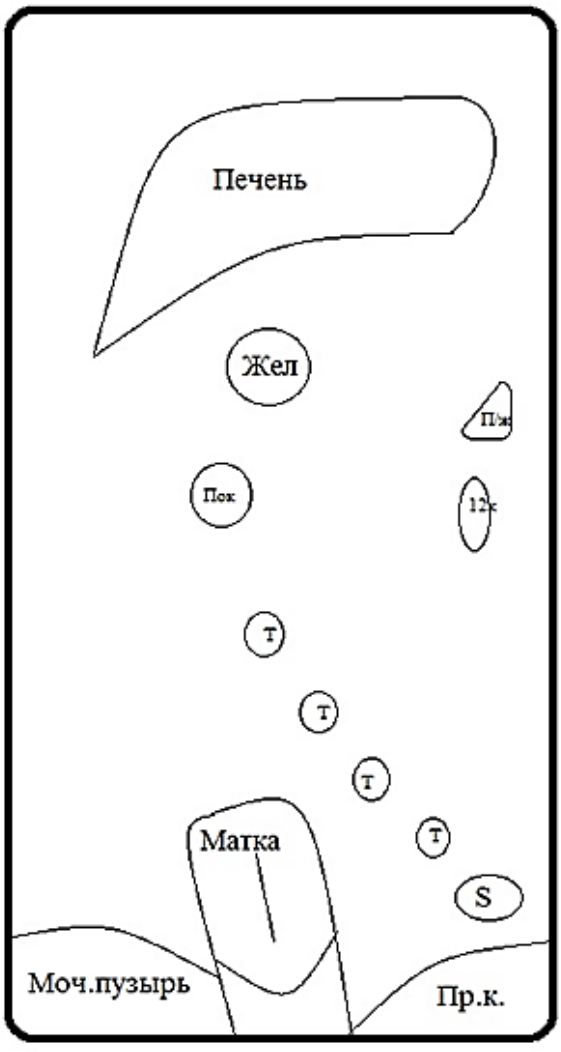
1. Append:
A) Parietal peritoneum is _____
_____
B) the Visceral peritoneum is _____
_____
IV. Questions for self-control:

1. What is the difference between the peritoneal cavity and the abdominal cavity?
_____
_____
_____
2. What practical value has the rectouterine recess (Douglas space
_____
_____
3. What organs of the abdominal cavity belong to the peritoneum mesoperitoneal
_____
_____
4. Specify the structure involved in the formation of the small omentum
_____
V. Make symbols for figures:

Parietal peritoneum	
	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17.

Median sagittal section of the body. Course of the peritoneum	
	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.

Draw the stroke of the peritoneum on the median sagittal slice and comment on the drawing:

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 sacks 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	cartilagines alares majores
9. Small wing cartilages	cartilagines 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.cricothyreoideum
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? _____

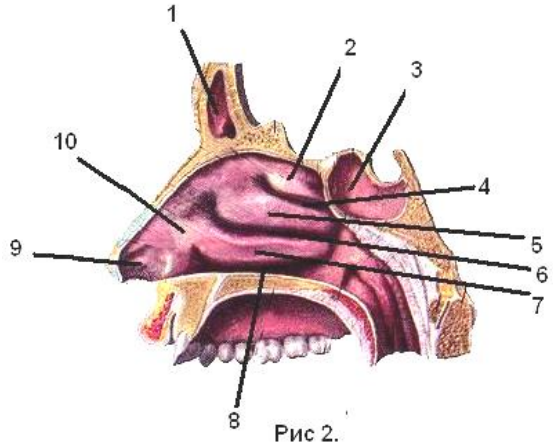
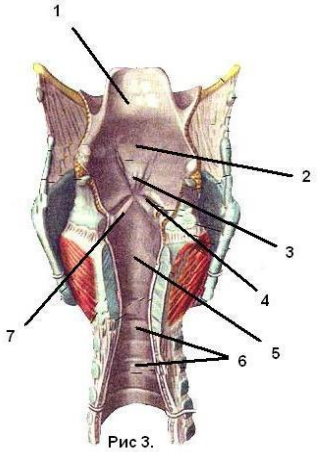
_____

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

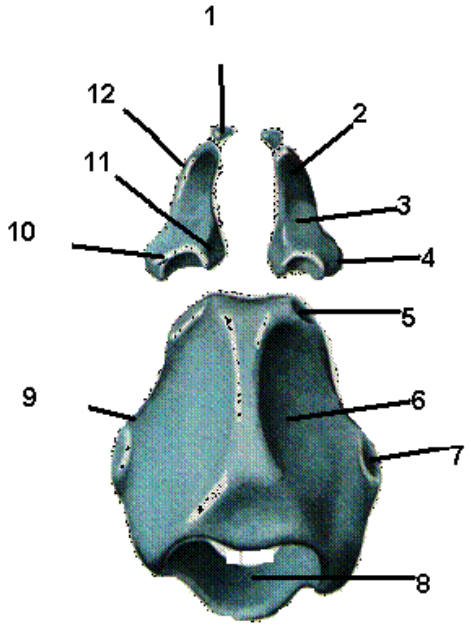
_____

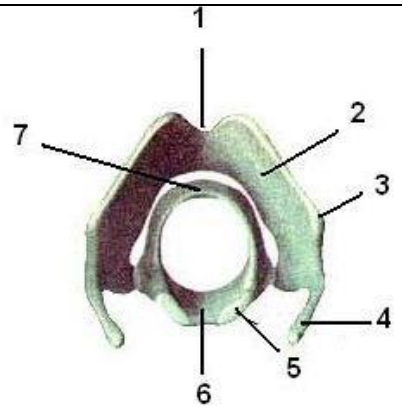
8.Specify the muscles straining the vocal cords? _____

V. Make symbols for figures

NASAL CAVITY	CAVITY OF THE LARYNX
 Рис 2.	 Рис 3.
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, BRONCHI AND LUNGS.
ANATOMY AND TOPOGRAPHY OF THE PLEURA AND THE MEDIASTINUM.

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

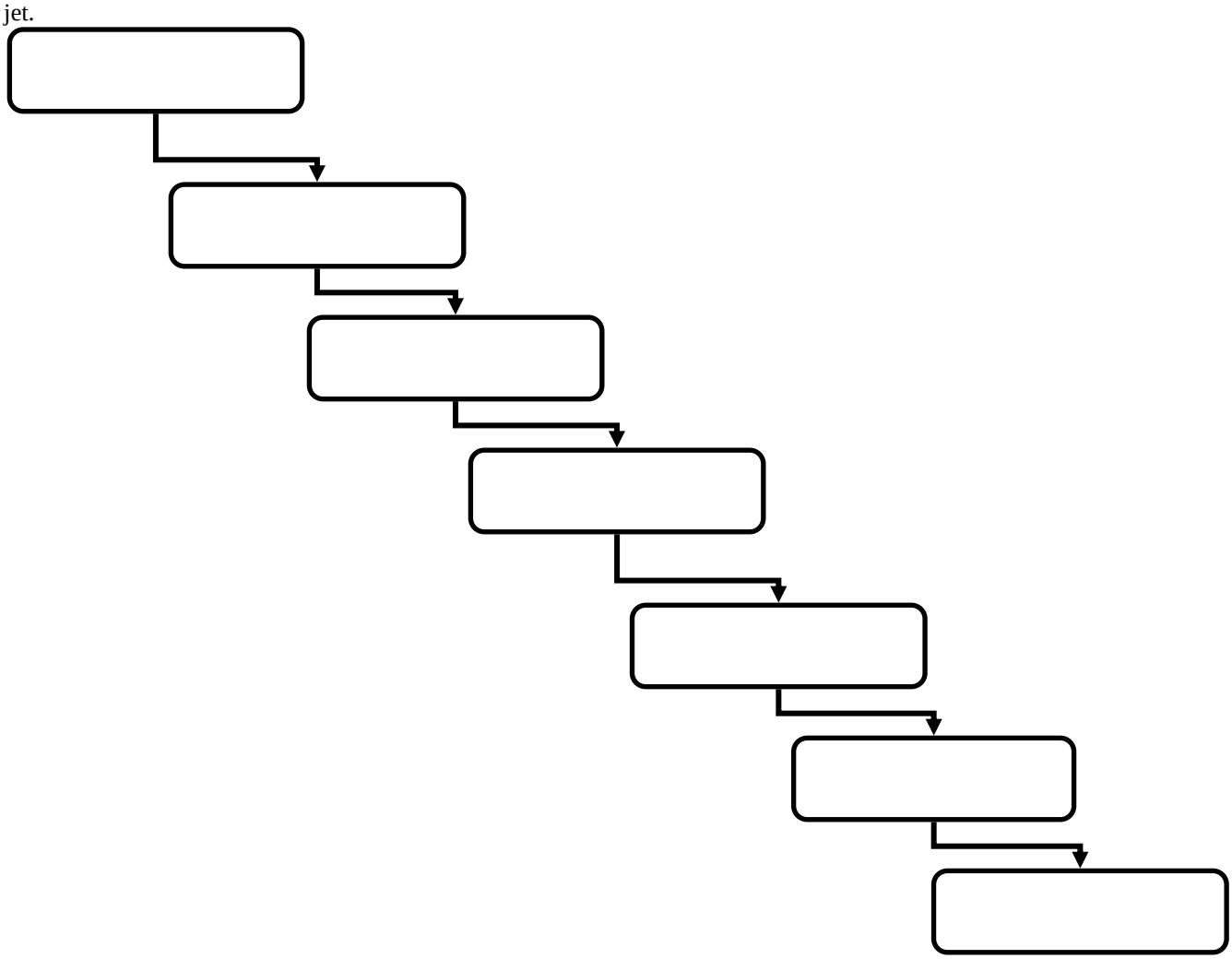
The student needs to know:

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.

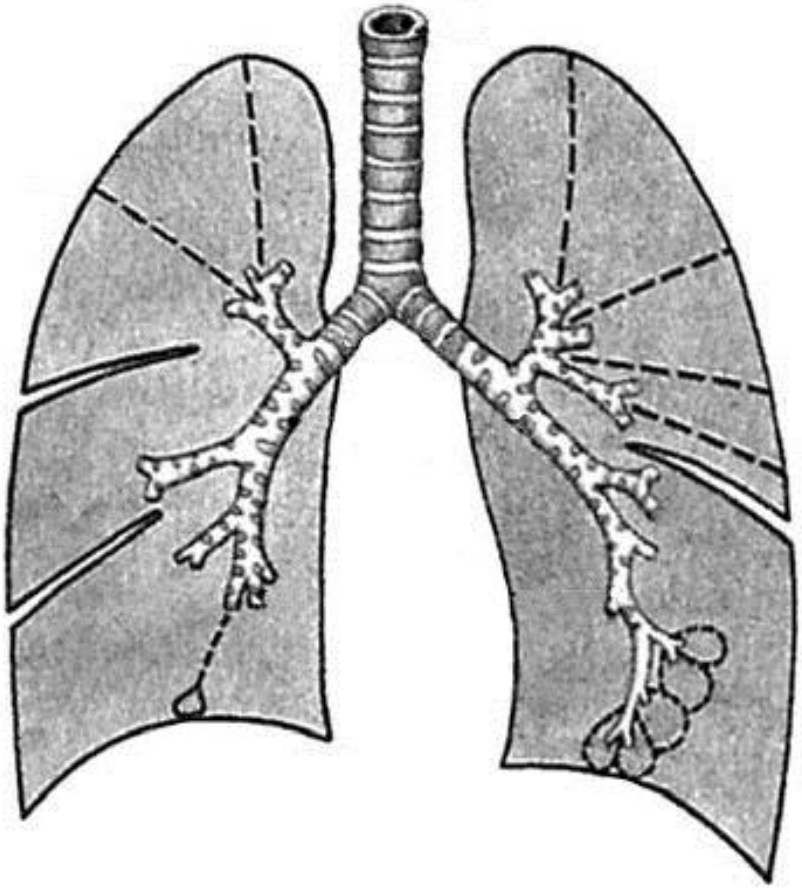
III the Task for independent work.

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?

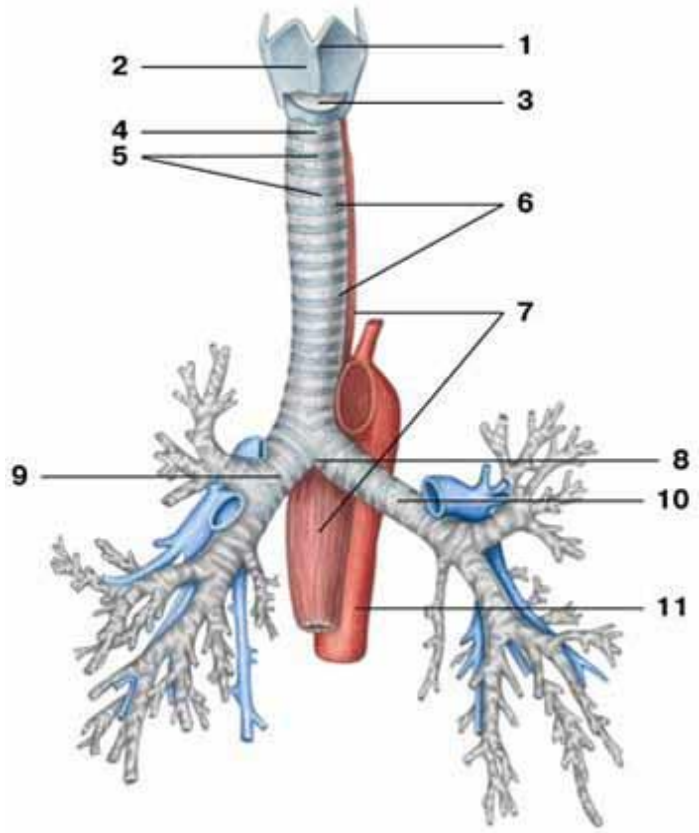
_____

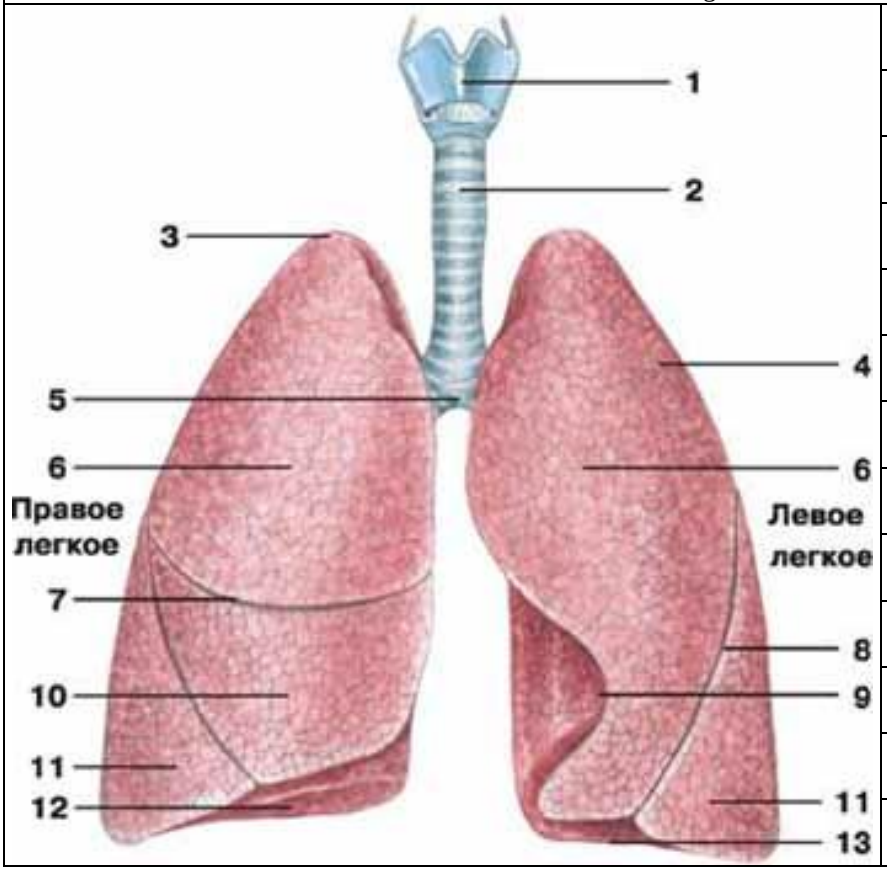
_____

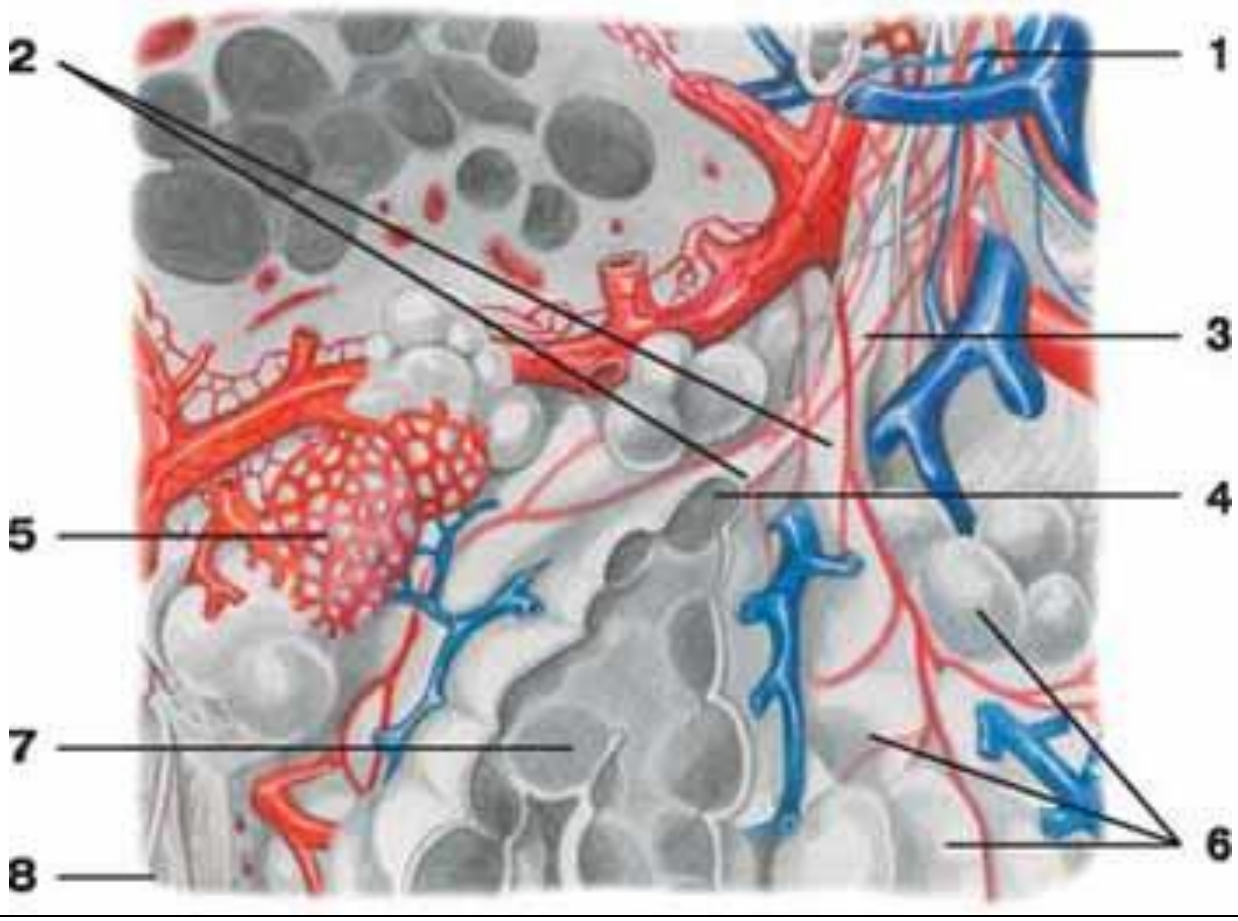
7.Specify the place of coincidence of projections of the boundaries of the lungs and pleura? _____

_____

V. Make a designation to the figures.

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

lung	
	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.

Lobule of the lung


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METHODICAL RECOMMENDATIONS TO PRACTICAL CLASSES ON THE SUBJECT:
"ANATOMY AND TOPOGRAPHY OF KIDNEYS, URETERS, BLADDER AND URETHRA. THE PROGRESS OF URINE. AGE PECULIARITIES. X-RAY-ANATOMY ".

Мочеполовой аппарат у человека объединяет мочевые органы, включающие мочеобразующие и мочевыводящие, мужские и женские половые органы. Мочевые органы представлены органами, продуцирующими мочу (почки), отводящими мочу из почек (почечные чашки, лоханка, мочеточники), а так же служащими для скопления мочи (мочевой пузырь) и выведения её из организма (мочеиспускательный канал). В процессе изучения мочеполовой системы студент должен научиться называть по-латински и показывать на отпрепарированном трупе и органокомплексе органы мочеполовой системы. Представлять их расположения и связь между собой и органами других систем.

I.Purposes:

The student needs to know:	1. Skeletotopy and syntopia of the urinary system (kidneys, ureters, bladder) in women and men. 2. Internal and fixing apparatus of the kidneys. 3. The structure of the nephron and especially the blood supply to the kidneys. 4. The structure of the ureters, divisions, constrictions and attitude to the peritoneum. 5. Differences in the course of the ureter in the female and male pelvis. 6. Topography of pelvic organs in men and women. 7. Departments and structure of the walls of the bladder, the relation to the peritoneum, especially the bladder triangle. 8. Structure and topography of male and female urethra and their differences. 9. The function of the male urethra. 10. Age features and x-ray anatomy of the kidneys. 11. Methods of study of the urinary system
The student must be able to:	1. show on the corpse with the opened abdominal cavity organs of the urinary system. 2. Explain the renal skeletotopy. 3. Name and show on sagittal sawing male pelvis bladder and urethra, and its departments. 4. Name and show the cystic triangle, the inner opening of the urethra, its departments. 5. Name and show in the prostatic part of the canal of the seminal tubercle. 6. To name and show the location of the narrowing of ureters, parts of urethra and the transition area of the pelvis into the ureter, the confluence of the ureters into the bladder. 7. Show on the preparation of the female pelvis position and course of the urethra.
Студент должен владеть:	1. Medical and anatomical conceptual apparatus. 2. Anatomical knowledge to determine the position of the urinary system on individual organ complexes and cadaveric material. 3. The simplest medical instruments are a scalpel and tweezers. 4. Technique of preparation (under the supervision of the teacher).

II. The required level of knowledge:
(a) related disciplines:
1) Development of the urinary system;
2) Age features of the urinary system;
3) kidney Development in Philo - and ontogenesis.
4) Microscopic structure of the urinary system.

b) of the preceding:
1) The structure of the pelvic bones. Pelvis as a whole.
2) the Structure of the abdominal and pelvic muscles.
3) the Ratio of the urinary system to the peritoneum.

C) from the current lesson:
1) know the organs that make up the genitourinary system.
2) be able to show the drugs and called in the Latin of the kidney, to determine the elements of their internal structure.
3) show the urinary organs and their anatomical parts.
4) know sellotape and syntopia kidneys.
5) the fixing apparatus of the kidney;
6) the internal structure of kidney.
7) a wonderful network of kidneys.
8) formation of renal pelvis, types of its structure.
9) the structure of the ureter and bladder.

III. Object of study.
1).Organs of the urinary system (kidneys, ureters, bladder) in women and men.

IV. Information part.

Kidney, - paired, excretory organ, forming and excreting urine. The kidney has a bean-shaped, dark red color, dense consistency. Length 10-12cm, width of 5-6cm and thickness is 4cm. Weight of kidney 120-200 g. the surface of the kidney in an adult smooth. There are more convex anterior surface and less convex posterior surface of the upper end (pole) and lower, as well as convex lateral edge and concave medial edge. In the middle part of the medial edge are the renal gates, which enter the renal artery and nerves, go ureter, renal vein, lymph vessels. These formations are combined into the so-called renal leg. The renal gate passes into a vast depression called the renal sinus.

Kidneys lie asymmetrically: the left kidney is slightly higher than the right. The upper end of the left kidney is at the level of the middle of the thoracic vertebra XI, and the upper end of the right kidney reaches the lower edge of the vertebra. The lower end of the left kidney lies at the level of the upper edge of the III lumbar vertebra, and the lower end of the right kidney corresponds to its middle. The ureter is a paired organ that begins from the narrowed part of the renal pelvis and ends with the confluence of the bladder. The function of the ureter is to remove urine from the kidney into the bladder. Length 30-35cm, width up to 8 mm. in 3 places the ureter has narrowing: the beginning of the ureter from the pelvis, the transition of the abdominal part of the ureter to the pelvic, where the borderline of the pelvis intersects, and at the confluence of the ureter into the bladder. The ureter is retroperitoneal. In the ureter, the following parts are distinguished: abdominal, pelvic and intrarenal.

The wall of the ureter consists of 3 shells: the inner – the mucous membrane, forms longitudinal folds. Middle-muscular membrane. Outside the ureter has an adventitial membrane.

The bladder is an unpaired hollow organ that performs the function of a reservoir for urine, which is removed from the bladder through the urethra.

In the bladder, the top of the bladder is isolated. Without obvious borders the tip of the bubble moves in the expanding part – the body of the bladder. Continuing back and down, the body of the bubble passes into the bottom of the bubble. The lower part of the bladder funnel narrows-the neck of the bladder and goes into the urethra. In the lower part of the neck of the bladder is the inner opening of the urethra.

The bladder is located in the pelvic cavity and lies behind the pubic symphysis.

The mucosa, tunica mucosa, lines the inside of the bladder and the PI emptied bladder forms folds. When filling the bladder with urine, the folds of the mucous membrane are completely straightened. The mucous membrane has a pinkish color, mobile, easy to fold, except for a small area in the bottom of the bladder (urogenital triangle), where the mucous membrane is tightly spliced with the muscle membrane.

The submucosa base is well developed in the wall of the bladder. Thanks to it, the mucous membrane can be collected in folds. In the area of the

Рентгенатомия.

The contours of the kidneys are smooth, have the form of arcuate lines; kidney shadow is uniform. The upper border of the shadow of the left kidney reaches the XI rib and the middle of the body XI thoracic vertebra, and the right-the lower edge of the same vertebra. The shape and size of the kidney are detected by introducing oxygen or gas into the retroperitoneal space — pneumoretroperitoneum. When pyelography (after the introduction of a contrast agent into the blood or retrograde through the ureter), the shadow of the renal pelvis is at the level of the bodies of the I and II lumbar vertebrae, the shadows of the renal cups are visible. The state of the arterial bed of the kidney is detected by arteriography.

On the radiograph, the ureter has the form of a narrow shadow with clear and smooth contours. At the exit from the renal pelvis, the right and left ureters approach the transverse processes of the lumbar vertebrae, forming a bend in the medial side in the lumbar part. In the pelvic cavity, the ureters are curved in the lateral direction. Before flowing into the bladder the ureters are re-curved medially. When fluoroscopy of ureters in a living person, in addition to the described anatomical contractions, it is possible to see physiological contractions associated with peristalsis of the ureters.

Age features.

In newborns and infants kidney rounded, its surface is bumpy due to lobular structure, which is associated with insufficient development of cortical substance at this age. Lobular structure of the kidney is preserved up to 2-3 years. The length of the kidney in a newborn is 4.2 cm, and the mass is 12 g . In infancy, the size of kidneys are enlarged about 1.5 times, and the weight is 37 g. In the first period of childhood the length of the kidney is equal to an average of 7.9 cm, weight — 56 g. in adolescents, the length of the kidney is 10.7 cm, and the weight of the kidney is 120 g.

In newborns, the thickness of the cortical substance of the kidney is approximately 2 mm, and the brain - 8 mm; their ratio is 1: 4. The thickness of the cortical substance in an adult compared to that of a newborn increases about 4 times, brain-only 2 times.

The growth of the kidney occurs mainly in the first year of a child's life. In the period from 5-9 years, and especially in 16-19 years, kidney size increases due to the development of cortical matter, which continues until the end of puberty; growth of brain matter stops to 12 years. The mass of the cortical substance of the kidneys increases due to the growth in length and width of the proximal and distal convoluted tubules and the penetrating part of the nephron loop. The renal pelvis of the newborn is wide, anulowanie.

The fibrous capsule of the kidney becomes clearly visible at the 5th year of life of the child, and by 10-14 years in its structure it is close to the fibrous capsule of an adult. The leaves of the renal fascia of the newborn are very thin, thicken gradually as the age of the child increases. Fat capsule is almost absent and begins to form only to the period of the first childhood, in the future it gradually thickens. By 40-50 years, the thickness of the fat capsule of the kidney reaches its maximum values, and in the elderly and old age it is thinned, sometimes disappears.

The topography of the kidneys changes with age due to their lowering. In a newborn, the upper end of the kidney is projected at the level of the upper edge of the XII thoracic vertebra, and in infancy (up to 1 year) — at the level of the middle of the body XII thoracic vertebra. The lower end of the kidney in the newborn is at the level of the lower edge of the IV lumbar vertebra, in the one-year-old child-on Vpozvonka higher, due to the rapid growth of the vertebral column. After 5-7 years, the position of the kidney relative to the spine is close to that of an adult.

At the age of over 50 years, especially in old and malnourished people, the kidneys may be lower than at a young age. In all periods of human life, the right kidney is located slightly below the left.

In the newborn, both kidneys in the area of the upper end and the anteromedial surface (almost to the gate of the kidney) come into contact with the corresponding adrenal gland. To the right kidney also lie the liver, cecum and Appendix. The left kidney is adjacent to a small area of the spleen; the gate is located medial to the tail of the pancreas. The longitudinal axis of each kidney in children up to 3-4 years runs parallel to the spine, the renal gates are facing somewhat anteriorly. By 5-6 years, the longitudinal axes take an inclined (converging upward) direction. As the human body grows, the position of the kidney and the relative length of its artery and veins that make up the "kidney leg"change. In a newborn, the "renal leg" is relatively long, the vessels are oblique: the beginning of the renal artery and the mouth of its vein are above the renal gate. Then the "renal leg" gradually takes a horizontal position, and after 50 years due to some displacement of the kidneys down the length of the "renal leg" increases and it is directed downwards.

V. Practical work:

Task № 1. On the body and isolated organs of the urogenital system locate the kidneys. In the area of their gate, behind determine the location of the ureter, the lower part of which flows back into the bladder at the bottom. On the sagittal cut of the pelvis, behind the pubic symphysis, find the bladder, note its position in relation to the peritoneum. On the table show the stroke of the male and female urethra. Note the position of the genitals in the pelvis in men and women. Emphasize the genetic and anatomical relationship of the urinary and sexual system.

The task № 2. On the corpse and the complex of genitourinary organs determine the position of the kidneys on the posterior abdominal wall, on the sides of the vertebral column, at the level OF XII thoracic - III lumbar vertebrae). Note that the right kidney is located 1 vertebra below the left. On a stand-alone drug kidney define its upper and lower pole, the medial and lateral edges, the front of the rear surface. On the body near the kidney, locate the renal fascia (if it survived) and the fatty capsule of the kidney. On an isolated kidney, having previously made its incision, show the fibrous capsule of the kidney and lightly peel it off.

Task number 3. On the frontal incision of the kidney, determine the location of its gate, the place of entry of the renal artery and the exit of the vein and ureter. Consider the structures located in the renal sinus. Show renal pelvis, using the textbook, determine the type of its structure, show large and small cups, as well as segmental branches of the renal artery (upper and lower pre - cranial, upper and lower pole and behind-pelvic).

On the frontal section of the kidney on the periphery of the organ, note the location of the cortical substance. Closer to the center of the kidney, scroll to the closer formation of triangular-shaped renal pyramids that form the medulla of the kidney. Between them, determine the layers of cortical substance-renal columns. Once again, pay attention to the blood vessels of the kidney: arteries branching in the sinus region and the tributaries of the renal vein.

The task № 4. In the diagram and table, select the main elements of the morpho-functional unit of the kidney - nephron. Note the sequential branching of the renal artery-segmental-interstitial, arcuate, and interlobular arteries, as well as bringing vessels. Analyze the structure of the renal glomerulus and its relationship with the renal capsule. Show the course of the carrying vessel and its branching into peritubular capillaries. Determine the location and functional role of the convoluted tubules, insertion Department, loop Henle and collecting tubules. On the frontal section of the kidney, on the tops, pyramids, find the renal papillae, specify the location of the papillary ducts and papillary openings.

The task № 5. On the corpse and the complex of the genitourinary system determine the position of the ureters. Show the ureter located in the abdomen and pelvis. In the area of the transition of the pelvis to the ureter, on the border of the abdominal and pelvic parts, as well as at the confluence of the bladder, mark the places of anatomical narrowing of the ureter. In the diagram, describe the elements of the internal structure of the ureter wall with the release of three shells-adventitial, muscular and mucous.

Task number 6. On the body, the complex of organs and sagittal section of the pelvis identify the position of the bladder between the pubic symphysis and rectum in men and the pubic symphysis and uterus in women. Note that in the filled state the upper parts of the bladder can rise to different levels above the pubic symphysis. Make sure that the emptied bladder is covered with the peritoneum only from behind, i.e., it occupies an extraperitoneal position. In the filled state, the organ is covered with the peritoneum on three sides, i.e. it is mesoperitoneal. On the complex of organs, using a picture in the Atlas, show the main anatomical parts of the bladder - its bottom, body, top and neck. On the table, read the elements of the internal structure of the organ wall - its serous or adventitial membrane, muscular membrane, submucosal base and mucous membrane.

Show the front, back and side walls of the bladder. Determine the location of the bubble triangle, including a portion of the bottom, limited mouth of the ureters and the inner opening of the urethra. Pay attention to the lack of folding of the mucous membrane of the urogenital triangle as a consequence of the fusion of the muscular and mucous membranes without the participation of the submucosal basis. On the cross cut of the female pelvis and the scheme determine the position and course of the female urethra. Show its beginning from the inner opening of the urethra, the place of perforation of the genitourinary diaphragm, as well as the outer opening, located on the threshold of the vagina, slightly below the clitoris. On the sagittal cut of the male pelvis and on the diagram show the course of the male urethra. Details of the structure and course of the male urethra learn in class on the anatomy of the male genital organs.

VI. Control question:

1) Know the General characteristics of the genitourinary system.
2) Know the formation and stroke of urine.
3) On the prepared corpse to know the location of the kidney and be able to distinguish between right and left kidneys.
4) Show on a separate preparation the cortical and cerebral layer of the kidney, the Cup-pelvic apparatus of the kidney, the gate of the kidney and the elements forming its leg.
5) Features of the blood supply to the kidneys.
6) the structure of the nephron – sketch.
7) the Structure of the ureter walls. Topography of the ureter.
8) Anatomical narrowing of the ureter.
9) topography of the bladder. The structure of the bladder walls.
10) fixing apparatus of the bladder.

VII. Learning objective.
Problem number 1.A patient with multiple kidney ruptures was taken to the clinic from the scene of the car accident. The situation is that it is preferable to remove it (nephrectomy). What should make anatomically competent surgeon before proceeding to surgery?
Answer: that the injured kidney is not the only one. This anomaly of development of kidneys is uncommon, but forget about such a possibility should not, removal of a solitary kidney lead, understandably ,to a severe consequence.

Problem number 2. The patient suffers from urolithiasis. In which place is most likely to get stuck stone when it passes through the urinary tract? Give an anatomical study.
A: Most likely wedging the stone in vnutriserdecnuu part (pars intramuralis) of the ureter. This is the narrowest fragment of the urinary tract between the pelvis and the bladder.

VIII. Control tests:
1. Specify the projection level of the upper pole of the left kidney.
A. the lower edge of XI thoracic vertebra;
B. the middle of the eleventh thoracic vertebra
V. the Upper edge of XI thoracic vertebra
G. the Bottom edge of the XI thoracic vertebra
2. What segments are isolated in the kidneys.
A. medium
B. upper front
V. Back
D. Lower front
3. Specify where the renal calyx is located
A. In the cortical substance of the kidney
B. in the medulla of the kidney
B. in the renal sinus
G. medial to the renal pelvis
4. Specify the organs adjacent to the anterior surface of the left kidney
A. jejunum
B. colon
B. spleen
G. sigmoid colon
5. Specify the anatomical formations located in the renal sinus
A. blood vessels
B. the ureter
B. large renal cups
D. small renal cups
6. Label structure part of the nephron.
A. capsule of the glomerulus
B. capillary tangle of renal corpuscle
B. collecting tube
G. distal convoluted tubule
7. What are the components of the ureter.
A. renal
B. abdominal
B. pelvic
G. intracranial
8. Identify the organs to which the posterior surface of the bladder in women is attached.
A. the urogenital diaphragm
B. the body of the uterus
B. cervix
D. vagina
9. Specify the location of the bladder triangle
A. in the area of the bladder apex
B. in the area of the bladder neck
B. at the bottom of the bladder
D. in the body of the bladder
10. Specify the components of the bladder.
A. the tip of the bubble
B. bladder neck
V. the bottom of the bubble
G. the body of the bladder
Ответы к тестам:

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

IX. Анатомическая терминология:

Латинская транскрипция	Русская транскрипция
Ren	Kidney
Facies anterior	Front surface
Facies posterior	Back surface
Margo lateralis	The lateral edge
Margo medialis	The medial edge
Hilus renalis	The renal gate
Sinus renalis	Renal sinus
Extremitas superior	The upper end of the kidney
Extremitas inferior	The lower end of the kidney
Segmenta renales	Renal segments
Segmentum anterius superius	Upper front segment
Segmentum superius	Upper segment
Segmentum anterius inferius	The lower front segment
Segmentum inferius	Lower segment
Segmentum posterius	The rear segment
Capsula adiposa	Fat capsule
Fascia renalis	Renal fascia
Capsula fibrosa	Fibrous capsule
Medulla renis	Brain substance
Pyramides renales	Renal pyramids
Basis pyramidis	The base of the pyramids
Processus medullares	Brain processes
Cortex renis	Cortical substance
Columnae renales	Kidney posts
Lobi renales	Renal lobes
Lobuli corticales	Cortical slices
Papilla renalis	Renal nipple
Foramina papillaria	Papillary holes
Area cribrosa	Lattice field
Calyx renalis minor	Small renal Cup
Calyx renalis major	A large renal Cup
Pelvis renalis	Renal pelvis
Tubuli renales	Renal tubules
Corpusculum renis	Renal body
Tubuli renales contorti	Convoluted renal tubules
Tubuli renales recti	Straight renal tubules
Ductus papillares	Collective tubules
Aa.interlobares renis	Renal interlobular arteries
Aa.arcuatae	Arc arteries
Arteriolae rectae	Direct arterioles
Aa. Interlobulares	Interlobular arteries
Vas afferens	- Generating vessel
Glomerulus	Glomerulus
Capsula glomeruli	Capsule of glomerulus
Vas efferens	The efferent vessel
Venulae rectae	Straight venules
Vv.arcuatae	The veins arc
Vv.interlobulares	Interlobular veins
Vv.stellatae	Stellate veins
Vv.interlobares	Interlobular veins
V.renalis	Renal vein
Ureter	Ureter
Pars abdominalis	The ventral portion of the
Pars pelvina	Pelvic part
Tunica adventitia	Adventitia
Tunica muscularis	Muscular layer
Tunica mucosa	Mucous membrane
Vesica urinaria	Bladder
Corpus vesicae	The body of the bladder
Apex vesicae	The tip of the bubble
Ligamentum umbilicale medianum	The median umbilical ligament

Urachus	Urachus
Fundus vesicae	The bottom of the bubble
Cervix vesicae	Bladder neck
Ostium urethrae internum	Internal m/C opening
Tela submucosa	Submucosa
Ostia ureterum	Ureter holes
Trigonum vesicae	Urogenital triangle
Plica interureterica	Mioclonia fold
Uvula vesicae	The uvula of the bladder
Plica vesicalis transversa	Transverse vesical fold

X. Drugs and textbooks: Corpse with an open abdominal cavity. Complex organs of the genitourinary system. Frontal incision of the kidney. Sagittal section of the male and female pelvis. Textbook. Atlas of human anatomy. Tests and standards of answers to them, tables, schemes.

EXTRACURRICULAR INDEPENDENT WORK.
METHODICAL RECOMMENDATIONS TO OUT-OF-CLASS INDEPENDENT WORK ON THE TOPIC:
ANATOMY AND TOPOGRAPHY OF THE URINARY ORGANS.
ANATOMY AND TOPOGRAPHY OF KIDNEYS

1. Initial level of knowledge:
1. Development of urinary system
2. General characteristics of the urinary system
3. Urine stroke
4. Topography of the kidney

2. Targets

The student needs to know:
1. Sellotape kidneys. The ratio of the 12 edge. 2. External and internal structure of the kidneys. 3. The structure of the nephron. 4. Characteristics of blood supply of kidneys. 5. The shell of the kidney and finically apparatus of the kidney. 6. Attitude to the peritoneum and age characteristics of the kidneys.
The student must be able to:
1. Show on the body location of the kidneys. 2. Show on a separate preparation of the kidney cortical and cerebral layer of the kidneys, Cup-pelvic kidney apparatus. 3. Show on a separate preparation kidneys its gates and elements forming its leg. 4. Distinguish between the drug right and left kidneys

3. Tasks for independent work:
1. Make a diagram of the course of urine

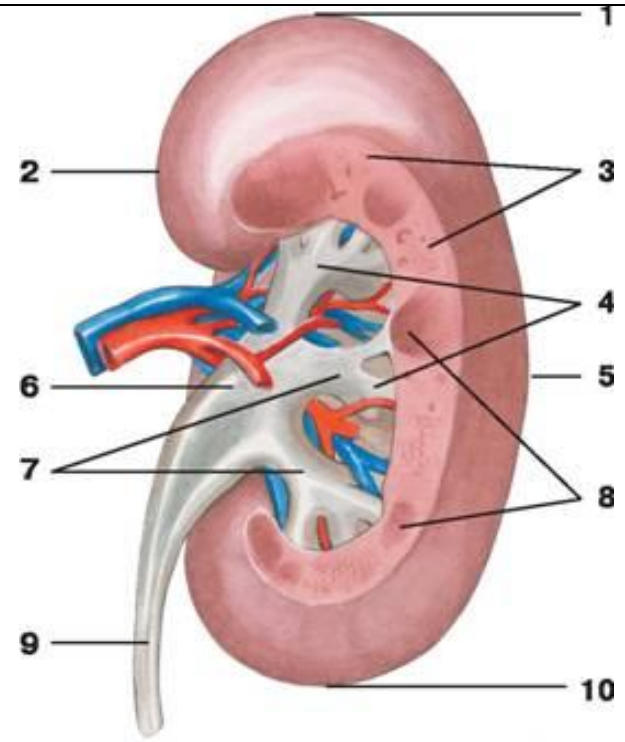
1. 1. Draw a diagram of the structure of the nephron and explain the "miracle" of the kidney network:

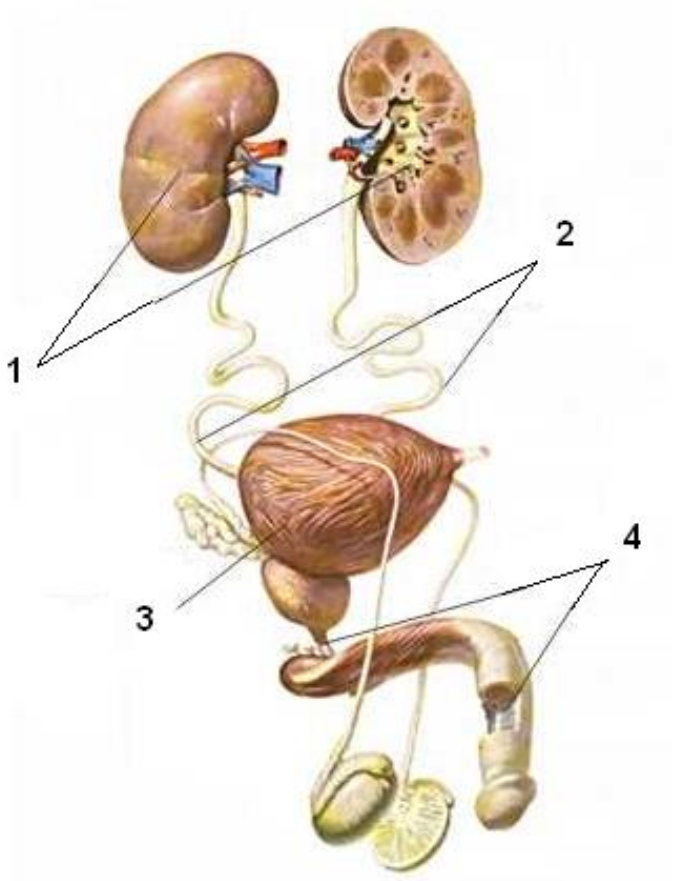
Scheme of nephron structure	The "wonder" of the kidney network

Continue the phrase:
A) the Muscular bed of the kidney is formed _____
_____
B) in the gates of the kidneys are located _____
_____
C) the Pelvis is formed from _____
_____
D) the Renal gate continues into the recess, which is called _____
_____

4. Questions for self-control:
1. Where is the formation of primary and secondary urine _____
_____
2. What shell has kidney. Describe the course of the renal fascia. _____
_____
_____
_____
3. What is the sinus of the kidney _____
_____
4. What is the "wonder of the kidney network". _____
_____
_____

5. Сделайте обозначения к рисунку

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

The organs of the urinary tract	
	1. 2. 3. 4.

METHODICAL RECOMMENDATIONS TO OUT-OF-CLASS INDEPENDENT WORK ON THE TOPIC:
ANATOMY AND TOPOGRAPHY OF THE URETERS.

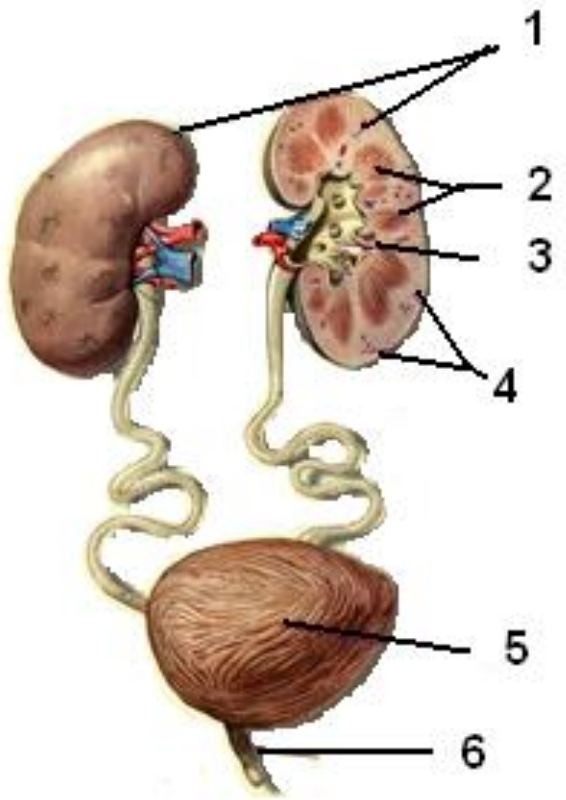
1. Initial level of knowledge:

1. The anatomical structure of the ureter and ureter.
2. Differences in the course of the ureter in the female and male pelvis.

2. Targets

The student needs to know:
1. The topography of sellotape and divisions of the ureters. 2. The course of the ureters of the abdominal and pelvic departments. Anatomical narrowing of the ureter. 3. The ratio of the ureter to the peritoneum. 4. The structure of the ureter walls. Age characteristics of the ureter.
The student must be able to:
1. On the corpse, and bodies to show the divisions of the ureter, the region of the transition of pelvis into ureter 2. Show on the drug the confluence of the ureters in the bladder. 3. Show the boundaries of the bubble triangle

Студент должен уметь:
1. На трупе и телах показаны отделы мочеточника, область перехода таза в мочеточник
2. Показать на препарате место впадения мочеточников в мочевой пузырь.
3. Показать границы пузырькового треугольника
5. Сделайте обозначения к рисункам

Органы мочевыделительной системы	
	1. 2. 3. 4. 5. 6.

Методические рекомендации к внеаудиторной самостоятельной работе по теме:
Анатомия и топография мочевого пузыря.

1. Исходный уровень знаний:

1. Топография мочевого пузыря.
2. Строение стенки мочевого пузыря.
3. Возрастные особенности мочевого пузыря.
4. Отношение мочевого пузыря к брюшине.

2. Целевые задачи

Студент должен знать:
1. Топографию мочевого пузыря у женщины и у мужчины. 2. Строение стенок мочевого пузыря. 3. Отношение мочевого пузыря к брюшине при наполненном и опорожненном состоянии. 4. Фиксирующий аппарат мочевого пузыря.
Студент должен уметь:
1. Показать на препарате места впадения мочеточников в мочевой пузырь. 2. На трупе, комплексе органов и сагиттальном распиле таза определить положение мочевого пузыря у мужчины и у женщины. 3. На комплексе органов показать основные анатомические отделы мочевого пузыря.

3. Задание для самостоятельной работы:

1. Опишите строение стенки мочевого пузыря _____
_____

2. Чем образован мочепузырный треугольник. _____
_____

3. Закончите фразы:

А). У мужчин позади мочевого пузыря располагается _____
_____

Б). У женщин позади мочевого пузыря располагается _____
_____

В). Мышечная оболочка в области внутреннего отверстия мочеиспускательного канала образует _____

4. Вопросы для самоконтроля:

1. Строение стенки мочевого пузыря. _____
_____

2. Какие отделы имеет мочевой пузырь _____
_____

3. Отношение к брюшине мочевого пузыря в зависимости от его наполнения
_____

Methodical recommendations to out-of-class independent work on the topic:
Anatomy and topography of the urethra.

1.Initial level of knowledge:

1. Topography of female and male urethra.
2. The difference between male and female urethra.
3. The structure of the wall of the urethra.

2. Целевые задачи

The student needs to know:
1. What parts of the male urethra. 2. Contractions and curves of the male urethra. 3. Age peculiarities of male and female urethra. 4. Features of the structure of the female urethra.
The student must be able to:
1. To show the course of the urethra and the details of its structure on the sagittal sawing of the male pelvis. 2. To show the position and course of the female urethra, the place of perforation of the urogenital diaphragm on the preparation of the transverse cut of the female pelvis.

3. Tasks for independent work:

1.Features of the structure of the male urethra. _____
_____

2.Features of the structure of the female urethra. _____
_____

3.What you need to know with proper catheterization of the urinary tract in men and women. _____

_____

4. Questions for self-control:

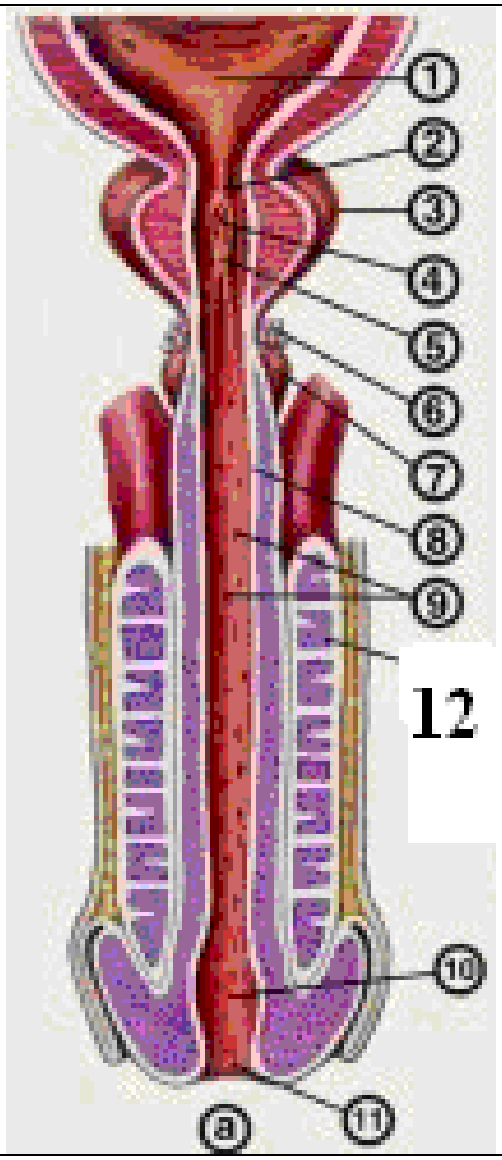
1. What is the difference between male and female urethra?

_____

2. How can we explain the violation of urination in men with prostate cancer?

_____

5. Make a notation to the picture

Urethra	
	1.
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METHODICAL RECOMMENDATIONS TO PRACTICAL CLASSES ON THE SUBJECT:
"ANATOMY AND TOPOGRAPHY OF MALE GENITAL ORGANS. THE VALUE AND PRACTICAL SKILLS. THE SHEATH OF THE TESTICLE AND SCROTUM. THE PROGRESS OF THE SEED. MALE CROTCH. ANATOMY AND TOPOGRAPHY OF THE FEMALE GENITAL ORGANS. FEMALE CROTCH. AGE PECULIARITIES. X-RAY-ANATOMY ".

Studying this topic, the student must learn to name and show the organs of the reproductive system on the drugs, to represent their topography and the relationship between them. Know the structure of the genitals of the male and female systems and be able to associate them with the function of the organs of these systems. It is important to imagine the commonality of their development and possible anomalies. This is necessary to understand their pathology and to carry out the prevention and treatment of their diseases.

I. Objectives:

The student needs to know:	1.Classification of male genitals-external and internal. 2.The structure and function of the prostate, and the urethra. 3.The structure and topography of seminal vesicles. 4.The sheath of the testicle and scrotum. 5.The internal structure of the egg-semibratowo and semiprivate departments. 6.Departments and structure of the epididymis. 7.The formation and topography of the spermatic cord. 8.Ways of removing the seed. 9.The muscles and fasciae of the male perineum. 10.The structure of the external genitals in men. 11. Classification of female genital organs-external and internal. 12.The structure and topography of the uterus. 13.The structure and topography of the ovary. 14. .The structure and topography of the fallopian tubes. 15.Course of the peritoneum in the pelvis. The ratio of the peritoneum to organs. 16.Peritoneal ligaments of the uterus and ovary. 17.External female genital organs. 18.The structure of the female perineum.
The student must be able to:	1.On the whole corpse, organocomplexes and sagittal cuts of the pelvis to show and name external and internal male genitals. 2. .On the whole corpse, organocomplexes and sagittal cuts of the pelvis to show and name external and internal female genitals. 3.Name and show on native drugs the muscles of the perineum. 4.Explain the difference between a man's crotch and a woman's.
The student must possess:	1.Latin terminology. 2.methods of preparation. 3.to use the acquired knowledge in the clinic

II. The required level of knowledge:

(a) related disciplines:

1) development of the reproductive system;
2) Age features of the reproductive system;
3) Microscopic structure of the reproductive system.

b) of the preceding:

1)bone Structure of the pelvis
2)the Pelvis as a whole.
3)the muscles of the pelvis.
4)the Structure of the peritoneum.
5)the peritoneum in the pelvis

C) from the current lesson:

1) the General structure and development of the male reproductive system.
2) the General structure and development of the female reproductive system.
3) the Structure and size of the pelvis.

III the Object of study:

1)Organs of the reproductive system:
2) male external genitalia;
3) the external female genital organs;
4) of the internal male sex organs
5) the internal female genital organs;
6) male and female crotch.

IV. Information part.

Male genital organs

Testicles - paired male sex gland. The function of the testicles is the formation of male germ cells-sperm and release into the bloodstream of male sex hormones. The testicles are located in the perineum-scrotum. The left testicle is located below the right one. They are separated from each other by the septum of the scrotum and surrounded by shells. Length - 4cm, width - 3cm, thickness - 2 cm, weight of eggs equal to 20-30 gr. The egg has a firm texture, oval in shape. There are two surfaces: the more prominent medial and lateral, two edges: front and rear, which adjoins the epididymis. In the testicle distinguish the upper end, and the lower end. At the upper end of the testicle is often small in size process, egg weight gain.The epididymis is located along the posterior edge of the testicle. There are rounded extended upper part-the head of the epididymis, passing into the middle part - the body of the epididymis. The body of the epididymis continues into the tapering lower part of the tail of the epididymis. On the head of the epididymis there is a weight gain of the epididymis. Male sex cells (sperm) are produced only in the convoluted seminiferous tubules of the testicle. All other tubules and ducts of the testicle and epididymis are VAS deferens.

VAS deferens - paired organ, is a direct continuation of the duct of the epididymis and ends at the confluence with the excretory duct of the seminal vesicle. Length-50 cm. Based on the topographical features of the VAS deferens, it is divided into 4 parts: the testicular part, the rope part, the inguinal part and the pelvic part. The wall of the VAS deferens consists of mucous, muscular and adventitial membranes.

Seminal vesicles-a paired organ located in the pelvic cavity laterally from the vial of the VAS deferens, on top of the prostate, behind and side of the bladder bottom, is a secretory organ. The surface of the seminal vesicle is bumpy. Length-5 cm, width-2 cm, thickness-1 cm Excretory duct of the seminal vesicle is connected to the final Department of the VAS deferens and forms a VAS deferens, perforating the prostate gland and opening into the prostate of the male urethra, side of the seminal mound

Spermatic cord-formed in the process of lowering the testicle. It is a round weight 15-20 cm long, extending from the deep inguinal ring to the upper end of the testicle. The composition is composed of the spermatic cord, testicular artery, artery of the VAS deferens, Lesovedenie (venous) plexus, and lymphatic vessels of testis and epididymis, nerves and traces (residues) of the vaginal process in the form of thin fibrous strand.

The prostate gland is an unpaired muscular-glandular organ that secretes the sperm. The shape of the prostate gland resembles chestnut. In the prostate gland distinguish the base, top, two lobes-right and left; middle lobe (isthmus of the prostate - this proportion is hypertrophied in old age and makes it difficult to urinate. Front surface, back surface and lower lateral surface.To the pubic symphysis from the prostate gland are the lateral and median pubic-prostatic ligaments and pubic-prostatic muscle.

The bulbourethral gland is a paired organ that secretes a viscous liquid that protects the mucous membrane of the wall of the male urethra from irritation with its urine. The duct of the bulbourethral gland, thin and long (about 3-4 cm), perforating the bulb of the penis, opens into the urethra.

Scrotum-is a protrusion of the anterior abdominal wall, having two separated chambers for the male genital glands. Inside the scrotum in each of its chamber is the male sex gland.

The scrotum is allocated 7 layers (shells), which are also called egg shells:

1) leather
2) fleshy shell
3) external seminal fascia
4) fascia is the muscle that lifts the egg
5) the muscle that lifts the egg
6) internal seminal fascia
7) the vaginal membrane of the testicle-in which there are two sheets (two plates): the parietal plate and the internal.

Penis-is used to remove urine from the bladder and ejection of seed into the genital tract of a woman. The penis consists of the body of the penis, which ends with the head, meusa on its top a slit-like external opening of the male urethra. At the head of the penis distinguish the widest part-the crown of the head and the narrowed neck of the head. The back part is the root of the penis, attached to the pubic bones. The upper-anterior surface of the body is called the back of the penis. On the skin of the lower surface of the penis there is a seam that extends posteriorly to the skin of the scrotum and perineum. In the anterior part of the penis body, the skin forms a well-defined skin fold, the foreskin of the penis covering the head, and then passes into the skin of the penis head. On the underside of the glans penis, the foreskin is connected to the bridle head of the foreskin, which almost reaches the edge of the outer opening of the urethra. The skin of the inner leaf of the foreskin contains glands. The penis consists of 2 cavernous bodies located near the top, and one spongy body lying under them. The posterior ends of the cavernous bodies are pointed, diverge to the sides in the form of the legs of the penis, which are attached to the lower branches of the pubic bones.

Male urethra (male urethra) is an unpaired organ, has the shape of a tube with a diameter of 0.5-0.7 cm and a length of 12-22cm, perforating the prostate gland, the urogenital diaphragm and the spongy body of the penis. The male urethra is used for urine excretion and semen ejection. It begins with the inner opening of the urethra, in the wall of the bladder, and ends with an outer hole located on the head of the penis. Topographically, the male urethra is divided into 3 parts: prostate, membranous and spongy, and in terms of mobility - into fixed and mobile. Prostate part has a length of about 3 cm On the posterior wall of the prostatic urethra is elongated elevation of the crest of the urethra (the urethra). The most salient part of this ridge is called the mound of seed or seed was bpark, on top of which a recess - prostate dearest, is a vestige of the finite division paramesonephric ducts. The membranous part of the male urethra extends from the tip of the prostate to the bulb of the penis

Female genital organs

The ovary is a paired organ, the female genital gland, located in the pelvic cavity. In the ovaries, female sex cells (eggs) develop and Mature, and female sex hormones entering the blood and lymph are formed. The ovary is ovoid in shape.

The color of the ovary is whitish-pinkish. Weight of the ovary equal to 5-8 g. Length - 2.5 cm, width 1.5 cm and thickness to 1 cm In the ovary there are two free surfaces: medial, toward the side of the pelvic cavity and laterally adjacent to the wall of the pelvis. The surfaces of the ovary pass into the convex free (back) edge, and in front - into the mesenteric edge, attached to the mesentery of the ovary. In this region of the body is globoidea recess, called the gate of the ovary, and the ovary consists of artery, the nerves, the veins and lymphatics. The longitudinal axis of the ovary is vertical, so distinguish between upper pipe end facing towards the fallopian tube, and fallopian lower end connected with the uterus of own ligament of the ovary. To contact the office of the ovary is the ligament, suspensory ovary. The appendage of the ovary, ahoditsya between the leaves of the mesentery of the fallopian tube behind and lateral to the ovary and consists of a longitudinal duct of the appendage and several convoluted canals flowing into it - transverse ducts, the blind ends of which are facing the gate of the ovary

Periwinkle - a small-sized formation that also lies in the mesentery of the fallopian tube, near the tubal end of the ovary. Vesicular pendants (stalked hydatid), have the form of bubbles that are attached to long stalks, and contain in their cavity a transparent liquid. Vesicular grafts are located lateral to the ovary, slightly below the lateral part (funnel) of the fallopian tube

The fallopian tube is a paired organ that serves to carry the egg from the ovary into the uterine cavity. The fallopian tubes are located in the pelvic cavity. Length of the fallopian tube 10-12 cm of the Lumen of the fallopian tube on one side communicates with the cavity of the uterus is very narrow uterine orifice, on the other hand opens the abdominal opening in the abdominal cavity near the ovary.

The uterus is an unpaired hollow muscular organ in which the embryo develops, the fetus is born. The uterus is located in the middle of the pelvic cavity, lies behind the bladder and in front of the rectum. The uterus is pear-shaped. It distinguishes: bottom, body and neck.

The place of transition of the body of the uterus in the neck is narrowed and is called the isthmus of the uterus. The lower part of the cervix is pushed into the vaginal cavity, therefore called the vaginal part, and the upper part of the cervix, lying above the vagina, called above the vaginal part. The vaginal part of the cervix carries the opening of the uterus, (uterine throat), leading from the vagina to the cervical canal is limited to the anterior and posterior lips.

The vagina is an unpaired hollow organ that has the shape of a tube located in the pelvic cavity and extending from the uterus to the genital slit. At the bottom of the vagina passes through the urogenital diaphragm. The length of the vagina is 8-10 cm.

The vagina with its upper end begins from the cervix, goes down, where the lower end opens in the vestibule with the opening of the vagina. It is closed by the hymen, the place of attachment of which limits the vestibule from the vagina

.The eve of the vagina is unpaired, the scaphoid forms a recess bounded laterally by the medial surfaces of the labia minora, the bottom(rear) is fossa of vestibule of the vagina, at the top (front) is the clitoris. In the depth of the vestibule is an unpaired opening of the vagina.

In the vestibule of the vagina, the ducts of the large and small vestibular glands open.

The large gland of the vestibule (bartolin) is a steam room that secretes a mucous-like liquid that moisturizes the walls of the entrance to the vagina.

Small vestibular glands are located in the thickness of the walls of the vestibule of the vagina, where their ducts open.

The bulb of the vestibule has a horseshoe shape and a thinned middle part located between the outer opening of the urethra and the clitoris.

Female urethra (female urethra) is an unpaired organ that begins from the bladder with the inner opening of the urethra and ends with the outer opening; length - 2.5 - 3.5 cm, is a short, slightly curved and inverted bulge back tube.

In the lower part, at the point of passage through the urogenital diaphragm, the female urethra is surrounded by bundles of muscle fibers forming an arbitrary sphincter.

On top of the pubis is separated from the abdomen pubic furrow, from hip - hip grooves. The pubis (pubic elevation) are covered with hair, which in women on the abdomen are not moving.

The labia majora represent the steam room the skin fold is rounded, elastic, length of 7-8 cm and a width of 2-3 cm, the labia majora laterally limit the sex gap. The labia majora are connected between the spikes: wider; the front spikes of the lips and narrow the rear.

Small labia-paired longitudinal thin skin folds, located inside of the labia majora in the genital slit, limiting the vestibule of the vagina. The posterior ends of the labia minora connect with each other and form a transverse fold-the frenulum of the labia.

The clitoris consists of a paired cavernous body of the clitoris, each of which begins with the clitoris leg from the periosteum of the lower branch of the pubic bone. The legs of the clitoris have a cylindrical shape and are connected under the lower part of the pubic symphysis, forming the body of the clitoris. On top of the clitoris is limited to the foreskin, below there is a frenulum of the clitoris

The perineum is the area bounded in front by the lower edge of the pubic symphysis, behind-the tip of the coccyx and on the sides by the lower branches of the pubic and ischial bones and the ischial tuberosity.

The transverse line connecting the ischial mounds divides this area into two parts, having the shape of triangles: the anterior-perched region is called the urogenital region, and the lower-posterior-anal region

Within the genitourinary area is the so - called urogenital diaphragm, and in the anal area-the pelvic diaphragm.

The urogenital diaphragm occupies the front part of the perineum and has the shape of a triangle, the top of which faces the pubic symphysis. The sides are limited by the lower branches of the pubic and sciatic bones, the base corresponds to the line connecting the sciatic tubercles.

Through the urogenital diaphragm in men passes the urethra, in women-the urethra and vagina

Muscles of the urogenital diaphragm:

Surface:

1.superficial transverse perineal muscle;

2.sciatic-cavernous muscle;

3.bulbous-spongy muscle
Deep:
1.transverse perineal muscle;
2.sphincter of the urethra
The muscles of the pelvic floor:
Surface layer:
1.the outer sphincter of the anus
Deep layer:
2.muscle lifting the anus
3.PC muscle
Fascia of the perineum:
1). Superficial (subcutaneous) fascia of the perineum,
2). The lower fascia of the pelvic floor
3). Upper fascia of pelvic diaphragm,
4). The lower fascia of the urogenital diaphragm,
5). The upper fascia of the urogenital diaphragm,

The female perineum has some characteristic features: for example, the urogenital diaphragm in women is large in width, through it passes not only the urethra, but also the vagina. The muscles of this area are weaker than the muscles of the same name in men. The paired superficial transverse muscle of the perineum is often absent. Also poorly developed and deep transverse perineal muscle. Both fascia (upper and lower) of the urogenital diaphragm in women, on the contrary, more durable. The muscle bundles of the sphincter of the female urethra also cover the vagina, weaving into its wall. The tendon center of the perineum is located between the vagina and the anus, consists of intertwining tendon and elastic fibers.

Sciatic-rectal (anal) fossa is located in the perineum, on either side of the anus; filled with fatty tissue, contains blood vessels and nerves. The apex of the sciatic rectal fossa corresponds to the lower edge of the tendon arch of the pelvic fascia. The lateral wall of the sciatic-rectal fossa is formed by the fascia-covered internal locking muscle and the inner surface of the sciatic hillock. The medial wall is limited by the outer surface of the muscle that raises the anus and the outer sphincter of the anus, covered with the lower fascia of the pelvic diaphragm. The posterior wall of the sciatic rectal fossa forms the posterior bundles of the muscle that raises the anus, and the coccygeal muscle. The anterior wall of the sciatic rectal fossa is the transverse muscles of the perineum.Возрастные особенности женских и мужских половых органов.

The ovary of a newborn girl has a cylindrical shape. In period second childhood (8-12 years) form of ovary becomes ovoid. The length of the ovary of a newborn is 1.5—3.0 cm, width 4-8 mm. In the period of the first childhood length is equal to 2.5 cm In adolescence and young adulthood the length of the ovary is increased to 5 cm, the width is 3 cm, thickness — 1.5 cm, Weight of the ovary of a newborn is equal to 0.16 g in infancy (to 1 year) at 0.84 g in the period of the first childhood (4-7 years) is 3.3 g and at a young age of 6.03 g. In women after 40-50 years, the mass of the ovaries decreases, and after 60-70 years, there is a gradual atrophy of the ovaries. The surface of the ovaries is smooth in newborns and in infancy. Since adolescence on their surface appear irregularities, bumps caused by swelling of maturing follicles and the presence of yellow bodies in the ovarian tissue. Newborns have primordial follicles in the ovarian tissue, primary ovarian follicles appear in infancy. In adolescence, in the cortical substance of the ovaries, secondary (vesicular) follicles are formed, which in the sections of the organ have the form of cavities with light content. In newborns, the ovaries are still located outside the pelvic cavity, above the pubic symphysis, and strongly inclined anteriorly. By 3-5 years, the ovaries as a result of downward displacement and rotation around its long axis by about 90° acquire a transverse position. By the time of the first childhood (4-7 years), the ovaries descend into the pelvic cavity, where they take the position that is peculiar to them in an adult woman.

The uterus in a newborn, in infancy and in early childhood (up to 3 years) has a cylindrical shape, flattened in the anterior-posterior direction. During the second childhood, the uterus becomes rounded, its bottom expands. In adolescents, the uterus becomes pear-shaped. This form persists in the adult women. Length of the uterus in the newborn is 3.5 cm (2/5 of the length is its neck), by 10 years it increases to 3 cm, at a young age — up to 5.5 cm in the adult female, the length of the uterus is equal to 6-8 cm During the second childhood (8— 12 years), the length of the body and cervix are almost the same, in adolescents the length of the uterus is relatively increased, and in adolescence reaches 5 cm.

The weight of the uterus increases at first slowly and then quickly. The newborn uterus weight is 3-5 g, in adolescence (12-15 years) — about 6.5 g, and in adolescence (16-20 years) - 25-30 g.the Maximum weight (45-80 g) the uterus is aged 30-40 years, and after 50 years, its mass gradually decreases.

The cervical canal in a newborn is wide, usually contains a mucous plug. The mucous membrane of the uterus forms branched folds, which are smoothed by 6-7 years. Uterine glands are few, but as the girl's age increases, their number increases, the structure becomes more complicated, and by the period of puberty they become branched. The muscular membrane of the uterus, underdeveloped in a newborn girl, thickens during the growth of the uterus, especially after 5-6 years.

In newborns, the uterus is tilted anteriorly. The cervix is directed downward and posterior. The uterus is high, it protrudes above the pubic symphysis. The ligaments of the uterus are weak, so it easily shifts to the sides. After 7 years in the circumference of the uterus between the leaves of its broad ligaments appears a large number of connective and adipose tissue. As the size of the pelvis increases and due to the lowering of the organs located in it, the uterus gradually shifts down and occupies a position in adolescence, characteristic of this organ in a Polo-matured woman. In the elderly and senile age, due to a decrease in adipose tissue in the pelvic cavity, the mobility of the uterus increases.

The fallopian tubes of the newborn are curved and do not come into contact with the ovaries. In the period of maturation (in adolescence) due to the growth of the uterus, its wide ligaments and an increase in the pelvic cavity, the fallopian tubes lose their tortuosity, fall down, approach the ovaries. The length of the fallopian tube in a newborn is about 3.5 cm, during puberty increases rapidly. In elderly women, the wall of the fallopian tube is sharply thinned due to atrophy of the muscular membrane, the folds of the mucous membrane are smoothed

The vagina of the newborn is short (2.5—3.5 cm), arched, the anterior wall is shorter than the posterior one. The lower part of the vagina is facing anteriorly. As a result, the longitudinal axis of the vagina with the axis of the uterus forms a blunt angle, open anteriorly. The opening of the vagina is narrow. To 10 years the vagina changes a little, grows quickly during adolescence.

The pubis of a newborn girl is convex, the large labia are loose, as if swollen. The labia minora is not completely covered by the labia majora. The vestibule of the vagina is deep, especially in the front part, where the external opening of the urethra is located. In the posterior third, the vestibule of the vagina is limited to the large labia, and in the anterior parts — small; the hymen is dense. The glands of the vestibule in the newborn are poorly developed.

For x-ray examination of the uterus in its cavity is administered a contrast agent.

On the radiograph, the shadow of the uterine cavity has the form of a triangle with slightly concave sides. The base of the triangle is facing up and the top is facing down. The upper corners of the uterine cavity correspond to the openings of the fallopian tubes, the lower angle — the inner opening of the cervical canal. The uterine cavity accommodates from 4 to 6 ml of contrast fluid.

Age features

Egg to puberty (13-15 years) grows slowly, and then its development is dramatically accelerated. In the newborn the length of the egg is equal to 10 mm, weight — 0.2 g To 14 years length of the testis increased in 2-2,5 times (up to 20-25 mm), and the weight is about 2 g. In 18-20 years, the length of the egg is 38-40 mm, and the weight increases up to 20 g In adulthood (22 years later) dimensions and weight of the eggs increase slightly, and after 60 years, several reduced. In all age periods, the right testicle is larger and heavier than the left and is located above it.

The epididymis is relatively large. The length of the epididymis in a newborn is 20 mm, weight is 0.12 g. during the first 10 years of the epididymis grows slowly, then its growth is accelerated.

The egg weight gain, the appendage of the egg and the appendage of the egg in a newborn are relatively large, grow to 8-10 years, and then gradually undergo reverse development.

Newborn convoluted and the straight seminiferous tubules, and the tubules of the testis network do not have a gap, which appears to puberty. In adolescence, the diameter of the seminiferous tubules doubles, in adult men it increases by 3 times compared to the diameter of the seminiferous tubules in newborns.

By the time of birth, the testicles should have descended into the scrotum. However, with a delay in lowering the testicles in the newborn, they can be in the inguinal canal (retroperitoneal). In these cases, the testicles fall into the scrotum later, and the right testicle is located higher than the left.

The diameter of the spermatic cord in a newborn is 4.0-4.5 mm. the VAS Deferens is very thin, the longitudinal muscle layer in its wall is absent (appears to 5 years). The muscle that lifts the testicle is poorly developed. Up to 14 years, the spermatic cord and its components grow slowly, and then their growth accelerates. The thickness of the spermatic cord in a teenager of 15 years is approximately 6 mm, the diameter of the VAS deferens is 1.6 mm.

Seminal vesicles in a newborn are poorly developed, the length of the vesicle is 1 mm, the cavity is very small. Up to 12-14 years of seed bubbles grow slowly during adolescence (13-15 years old), their growth accelerates, the size of the cavity significantly and who will melt. With age, the position of the seminal vesicles changes. In the newborn, they are located high in connection with the high position of the bladder, on all sides covered with the peritoneum. To 2 years bubbles lowered and find themselves lying retroperitoneally. The peritoneum is only attached to their tops. Ejaculatory ducts in the newborn short (length 8 -12 mm).

In a newborn and infants (up to 1 year), the prostate gland is spherical, since the right and left lobes are not yet expressed. Iron is located high, soft to the touch, glandular tissue is not developed. Accelerated growth of the gland is noted after 10 years. By adolescence, there are shares and iron takes the form characteristic of the gland of an adult. During this period, the inner opening of the male urethra as it shifts to the anterior-upper edge of the prostate gland. The glandular parenchyma of the prostate gland develops rapidly in adolescence. At this time, prostate grooves are formed and the gland takes the form peculiar to the gland of an adult male. By 20-25 years the prostate gland is fully developed. In 30-50 % of men older than 55-60 years, there is an increase in the prostate gland, mainly its isthmus (prostate hypertrophy). The weight of the gland in a newborn is 0.82 g, in 1-3 years-1.5 g, during the second childhood (8-12 years) - 1.9 g, and in adolescence (13-16 years) - 8.8 g.

The bulbourethral glands of the newborn are underdeveloped, their epithelium and the capsule are little differentiated.

The length of the penis in a newborn is 2.0-2.5 cm, the foreskin is long, completely covers the head of the penis. The penis grows slowly until puberty, and then its growth accelerates.

The scrotum of a newborn has a small size, its skin is wrinkled due to the presence of a well-developed fleshy shell. Intense growth of the scrotum is observed during puberty.

V. Practical work:

Task № 1. On an isolated complex of organs of the male reproductive system, find the testicles, determine their lateral and medial surfaces, front and rear edges, upper and lower ends. Note that the left testicle is always slightly below the right one. Along the back edge of the egg determine the position of his appendage, show the head, body and tail of the epididymis. On the sagittal incision of the testicle, show the protein shell and the parenchyma of the organ. At the rear edge of the testis, identify the fibrous thickening of the mediastinum testis and departing from it more slim partitions, podrazdelyayutsya the parenchyma of the testis into lobules. In the section of the testicle and the diagram show located on the periphery of the convoluted seminiferous tubules and more centrally passing seminiferous tubules, merging in the area of the mediastinum of the testicle in the network of the testicle. The diagram will explain the position and course of the efferent tubules of the testis, bound to the head of the epididymis, the canal of the epididymis is continued into the VAS deferens.

The task № 2. On the complex of male genitourinary organs show the VAS deferens and sculpt his testicular, rope prostate. In the lower part, in the pelvic area, show the vial of the VAS deferens. In the diagram, consider the structure of its wall, show fibrous, muscular and mucous layers.
Task number 3. Laterally from the VAS deferens, between the bottom of the bladder and rectum, find the seminal vesicles. According to the scheme, show that at the lower pointed end of each bubble excretory duct begins, which in the thickness of the prostate gland after connection with the VAS deferens of the same side forms a VAS deferens. According to the scheme, explain that the latter is a thin canaliculus, opening in the prostate part of the urethra at the base of the seminal tubercle.
The task № 4. On the complex of male genitourinary organs find the prostate gland, located under the bladder and covering the initial part of the urethra. Show the bladder - facing base of the prostate gland and its apex adjacent to the urogenital diaphragm. Determine the anterior, convex surface of the gland facing the pubic symphysis and its posterior surface adjacent to the rectum. Show the isthmus of the prostate, located between both ejaculatory ducts and the back wall of the urethra. Determine the position of the right and left lobes of the prostate gland.
The task № 5. In the diagram, list the elements that make up the spermatic cord - arteries, veins, nerves, lymphatic vessels of the testicle, the VAS deferens, the muscle that lifts the testicle. Show on the diagram and on the Museum preparation of the shell of the testicle and the spermatic cord: the skin, fleshy shell, the outer fascia of the muscle that raises the testicle, the muscle that lifts the testicle, the inner seminal fascia, the vaginal membrane of the testicle with its parietal and visceral leaves, as well as the protein shell of the testicle.
Task number 6. Show the elements of the structure of the male penis in the figure and in the Atlas and, if possible, on the drug; paired cylindrical cavernous bodies, the rear ends of which are attached to the lower branches of the pubic bones and the unpaired spongy body lying below these bodies, forming a head in front, and behind the bulb of the penis. Specify the position of the root, body and glans of the penis, show the external opening of the urethra, foreskin and prepucialna bag.
The task № 7. On the scheme and the cut of the male pelvis, determine the position and course of the male urethra. Show its main parts - the prostatic, membranous and spongy. In the prostate, pay attention to the presence in the middle of its Department of the seed tubercle and the holes of the ejaculatory ducts. Pay attention to the narrowness and rigidity of the membranous part of the male urethra. In the spongy part of the diagram show the expansion in the area of the bulb spongy Tepa and scaphoid fossa. Explain the location and bends of the urethra, requiring the use of special techniques for bladder catheterization. The location of the first bend is the spongy part of the urethra between its fixed and free Department. The second bend of the male urethra with concavity, facing the symphysis, show between the prostate and webbed parts of the urethra.
The task № 8. At autopsy the corpse and the isolated complex of the female genital organs locate the ovaries. Highlight each cultivated on ovary to fallopian tube the upper tube end, the bottom facing towards the uterus, the uterine end. Determine the lateral medial surface of the ovary, its free and mesenteric edge. Show the gate of the ovary, the place where the body penetrate its vessels and nerves. Find your own ovarian ligament-a round cord between two sheets of a wide uterine ligament, going from the uterine end of the ovary to the lateral edge of the uterus, as well as hanging ovarian ligament, descending to it from the top of the lateral wall of the pelvis. Explain that in the thickness of this ligament are the vessels and nerves of the ovary.
The task № 9. On the cut of the ovary and the diagram show the location of the secondary vesicular follicles, which are female germ cells. Make sure that the outer surface of the female genital glands is not covered with the peritoneum. At autopsy the corpse and the isolated complex of the female genital organs fallopian tube find. Show them the fallopian part enclosed in the wall of the uterus, the isthmus evenly tapering, the division that is closest to the uterus the ampoule is next outward beyond the isthmus the division of the tube, and a funnel constituting a continuation of the ampoule equipped with numerous tube fringes. At the top of the funnel, locate the ventral tube. In the diagram, show the serous, muscular and mucous membranes of the fallopian tube wall. On the drug and the table, find the mesentery of the fallopian tube, note that it contains the appendages of the ovary.
Task number 10. On the corpse, the isolated complex of female genitals and sagittal sawing of the female pelvis, show the uterus, pay attention to its normal position with a tilt forward and bend forward. Find the bottom of the uterus-the upper part of it, stepping above the entrance line to the uterus of the fallopian tubes, her body, having the form of a narrowing triangle and neck, which is a continuation of the body downwards. As part of the cervix, select the vaginal part facing the vagina and the supravagal part located above it. Show the cervical canal, isthmus and uterine opening of the cervical canal. On the uterine section and on the scheme, be able to show the layers of the uterine wall: perimetry, myometrium and endometrium. Note that the peritoneum covers the front of the uterus to the junction of the body with the neck, and the back continues to the back wall of the vagina and goes to the rectum. On the sagittal sawing of the pelvis between the uterus and the bladder in front and the rectum in the back, show the bladder-uterine and rectal-uterine recesses. Find the broad ligaments of the uterus, following from its lateral edges to the lateral walls of the pelvis. From the upper corners of the uterus forward, up and laterally to the deep ring of the inguinal canal is a round ligament of the uterus. Note the position of the parameter between the sheets of the broad ligament of the uterus on the sides of it.
Task number 11. On the sagittal cut of the pelvis and the diagram show the location of the vagina, select its front and rear walls and arch - grooved space between the cervix and the walls of the vagina. In the diagram, look at the main layers of the vaginal wall - connective tissue, muscle and mucous.
Task number 12. On an isolated preparation of the female genital organs, show the location of the large and small labia, at the front end of the latter, show the clitoris, posteriorly from which find the outer opening of the urethra. On the sides of the openings of the vagina, on the eve of the vagina, the roots of the small lips mark the position of the large vestibule glands (glands Bartolini).
The task № 13. On a wet preparation, a dummy and a bone pelvis, determine the boundaries of the perineum as a space corresponding to the exit from the pelvis and performed by the muscles and fascia of this area. Be able to show the boundaries of the perineum: in front-pubic symphysis, behind - the tip of the coccyx, left and right - sciatic bumps. Explain the division of this space into two triangles corresponding to the genitourinary and anal regions. Explain that both of these busy triangle the urogenital and pelvic diaphragms and adjacent to each other with their bases almost at a right angle, and the urogenital

diaphragm is almost frontal and pelvic horizontally. On the muscle preparation and the model show the urogenital diaphragm limited by the pubic symphysis in front and the branches of the pubic and sciatic bones on the sides. Note the organs passing through the urogenital diaphragm: in men, the webbed part of the urethra, in women, the urethra and vagina. Show the pelvic diaphragm that covers the posterior triangle of the perineum, the top of which is the coccyx, and the two lateral corners are the sciatic tubercles. Through it men and women is colon.

The task № 14. On the muscle preparation and on the model, show the presence of two layers of muscles in the area of the urogenital diaphragm. In the deep muscle layer, locate the deep transverse perineal muscle starting from the sciatic bumps and branches of the sciatic bones and attaching to the tendon center of the perineum. In the place where the urethra passes through the urogenital diaphragm, indicate a change in the direction of the fibers of the deep transverse perineal muscle, acquiring a circular course, forming the sphincter of the urethra. Among the surface layer of the muscles of the urogenital diaphragm, highlight the position of the bulbous-spongy muscle. Note that in men it starts from the lower surface of the bulb of the penis, covers the nearest part of the spongy body and connects to the muscle of the opposite side in the seam area. In women, this muscle surrounds the opening of the vagina. Show the sciatic cavernous muscles that start from the sciatic mounds and attach to the cavernous bodies of the penis or clitoris. Find the superficial transverse perineal muscle going from the sciatic hillock to the midline to the center of the perineum.

Task number 15. As part of the pelvic diaphragm, find a muscle that raises the anus, starting from the lower branch of the pubic bone, from the fascia of the internal obturator muscle and the pelvic surface of the sciatic bone; it connects at the bottom with bundles of the same muscle on the opposite side and braid the rectum, as well as on the anterior part of the bladder and vagina in women and part of its fibers ends at the top of the coccyx. Show the coccygeal muscle starting from the sciatic network and attaching to the lateral edge of the coccyx and to the top of the sacrum. On the table, disassemble the course of the talus fascia and show its parietal part, lining the walls of the pelvis, and the visceral part, wrapped on the pelvic organs and clothe them. Determine the position of the lower and upper fascia of the urogenital diaphragm, respectively, covering the front and rear of the deep transverse perineal muscle and the sphincter of the urethra. Show the location of the perineal fascia surfaces covering the superficial muscles of the urogenital diaphragm. Note that in women, this fascia is divided into two halves of the vestibule. On the drug between the sciatic bumps and rectum show the location of the sciatic rectum pits.

VI. Control question:

1) General characteristics of the reproductive system.
2)What are the male sex organs, which belong to the external, to internal.
3) What are the female genitals, which are external, which to internal.
4) What was the shell of an egg.
5) What is the course of the seed?
6) the Role of bulbourethral glands.
7) what causes prostate enlargement?
8) the Uterus, its structure and functions.
9) What is the practical value of rectal - uterine deepening?
10) Ovary, its structure and functions.
11) What are the boundaries and departments of the perineum.
12) List the muscles that form the pelvic diaphragm.
13) List the muscles that form the urogenital diaphragm.
14) What are the differences in the structure of the male and female perineum

VII. Learning objective:

Problem number 1.When opening the corpse of a 5-year-old girl, the pathologist found a two-horned uterus.

1.What can explain such a congenital abnormality of the organ?

2.What organs develop from non-fused parts of the Muller ducts in the normal?

Answer:

1. The two-horned uterus is formed in prenatal ontogenesis with incomplete fusion of the Muller ducts.

2. The fallopian tubes are formed from the non-merged parts of the Muller ducts.

Problem number 2. In an elderly man, the process of urination is impaired. The urologist on examination found a significant increase in the prostate.

1. What is the connection between the gland and the urethra?

2. What is the effect of iron on the function of the urethra?

Answer:

1. The prostate covers the initial part of the male urethra.

2. As a muscular-glandular organ of the prostate is an involuntary sphincter of the urethra, preventing the expiration of urine during ejaculation.

VIII. Control tests:

1) Specify the anatomical formations that serve as the boundaries of the perineum:
. the lower branches of the pubic bone
b. sciatic mounds
B. the upper branches of the pubic bone
G. the tip of the coccyx
2) Specify the components of the uterus:
. the bottom;
b. body;
B. isthmus;
Mr. neck.
3) Point the superficial muscles of the pelvic diaphragm:

. PC muscle
b. muscle lifting the anus
B. the external anal sphincter
G. sphincter of the urethra
4) Specify the ligaments connecting the ovary to the pelvic wall:
. own ligament of the ovary;
b. the mesentery of the ovary;
B. ovarian suspension ligament;
d. round ligament of the uterus.
5) Specify the location of vesicular ovaries of follicles (graafovyh bubbles):
. in the medulla;
b. in the cortex;
B. in the protein shell;
d. at the gate of the ovary.
6) the Mediastinum of the testicle is on the:
. the medial surface;
b. the lateral surface of the;
V. the front edge of the;
Mr. back edge.
7) Specify the anatomical formations that are part of the penis:
. one cavernous body;
b. two cavernous bodies;
B. two spongy bodies;
one spongy body.

8) what are the components of the prostate gland secrete:
. upper lobe;
b. lower share;
B. average share;
d. all right.
9) the composition of the spermatic cord does not include:
. the VAS deferens;
b. vessels;
B. nerves;
G. VAS deferens.
10) Specify the components of the fallopian tube.
. uterine part
b. ampulla of the fallopian tube
C) the isthmus of the fallopian tube
g) funnel of the fallopian tube

Answers for test:

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

X Анатомическая терминология:

Русское название	Латинское название
Ovary	Ovarium
Medial surface	Facies madialis
The lateral surface	Facies lateralis
The mesenteric edge	Margo mesovaricus
Free edge	Margo liber
Pipe end	Extremitas tubaria
The uterine end of	Extremitas uterina
The mesentery of the ovary	Mesovarium
The gate of the ovary	Hilus ovarii
Cortical substance	Cortex ovarii
Brain substance	Medulla ovari
Stroma of ovary	Stroma ovarii
Primary ovarian follicles	Folliculi ovarici primarii
Vesicular ovarian fol-ly	Folliculi ovarici vesiculosi
Egg	Ovum
The lid of the follicle	Theca folliculi
Yellow body	Corpus luteum

Whitish body	Corpus albicans
Ligament, suspensory ovary	Lig. Suspensoruim ovarii
Own ligament of the ovary	Lig.ovarii proprium
Fallopian tube	Tuba uterina
The funnel of the fallopian tube	Infundibulum tubae uterinae
Abdominal opening of the fallopian tube	Ostium abdominale tubae uterinae
Pipe fringe	Fimbriae tubae
Ovarian fringe of ovary	Fimbria ovarica
Testicle	Testis
Medial surface	Facies medialis
The lateral surface	Facies lateralis
Forefront	Margo anterior
Rear edge	Margo posterior
Upper end	Extremitas superior
Lower end	Extremitas inferior
Albuginea	Tunica albuginea
Egg septum	Septula testis
Egg slices	Lobuli testis
The mediastinum of the testis	Mediastinum testis
Twisted seminiferous tubules	Tubuli seminiferi contorti
The straight seminiferous tubules	Tubuli seminiferi recti
A network of testicle	Rete testis
The efferent tubules of the testis	Ductuli efferentes testis
The vaginal membrane of the testicle	Tunica vaginalis testis
Visceral plate	Lamina visceralis
Parietal plate	Lamina parietalis
Epididymis	Epididymis
The head of the epididymis	Caput epididymidis
The body of the epididymis	Corpus epididymidis
The tail of the epididymis	Cauda epididymidis
Lobules of epididymis	Lobuli epididymidis
Egg hang	Appendix testis
Epididymis graft egg	Paradidymis

X. Preparations and manuals:
The organs of the male reproductive system, sagittal section of the testis, sagittal section of male pelvis. Textbook. Atlas of human anatomy. Corpse with an open abdominal cavity. Complex organs of the female reproductive system. Sagittal section of the female pelvis. Training tables. Textbook. Atlas of human anatomy. The level II tests and standards of answers to them. Tables. The drug is a bone of the pelvis. Preparations of male and female perineum. Fake crotch Tutorial. Atlas of human anatomy, vol. 2. Tables of female male crotch. The level II tests and standards of answers to them. Tables.

EXTRACURRICULAR INDEPENDENT WORK.
METHODICAL RECOMMENDATIONS TO OUT-OF-CLASS INDEPENDENT WORK ON THE TOPIC:
ANATOMY AND TOPOGRAPHY OF THE MALE AND FEMALE GENITAL ORGANS.
ANATOMY AND TOPOGRAPHY OF THE TESTICLE AND ITS APPENDAGE.

1. Initial level of knowledge:

1. Which male genitals are external and which are internal.
2. The anatomical structure of the testicle and its appendage.
3. The role of the convoluted tubules of the testicle.
4. What are the VAS deferens.

2.Targets

The student needs to know:
1. Know the organs that make up the male reproductive system. 2. What are the parenchyma of the testicle. 3. The shell of the egg. 4. Ways of removing the seed. 5. The process of lowering the testicle into the scrotu
The student must be able to:
1. Show on sagittal sawing of the male pelvis the location and the shell of the testicle. 2. Show the mediastinum and lobules of the drug on the sagittal section of the testicle.

3. Tasks for independent work:
1.Describe the shell of the egg. _____

2.The topography of the testicle.

3.Where the formation of male sex cells (sperm)?

4.What is formed by the mediastinum and slices of egg?

5.The topography of the appendage and its departments.

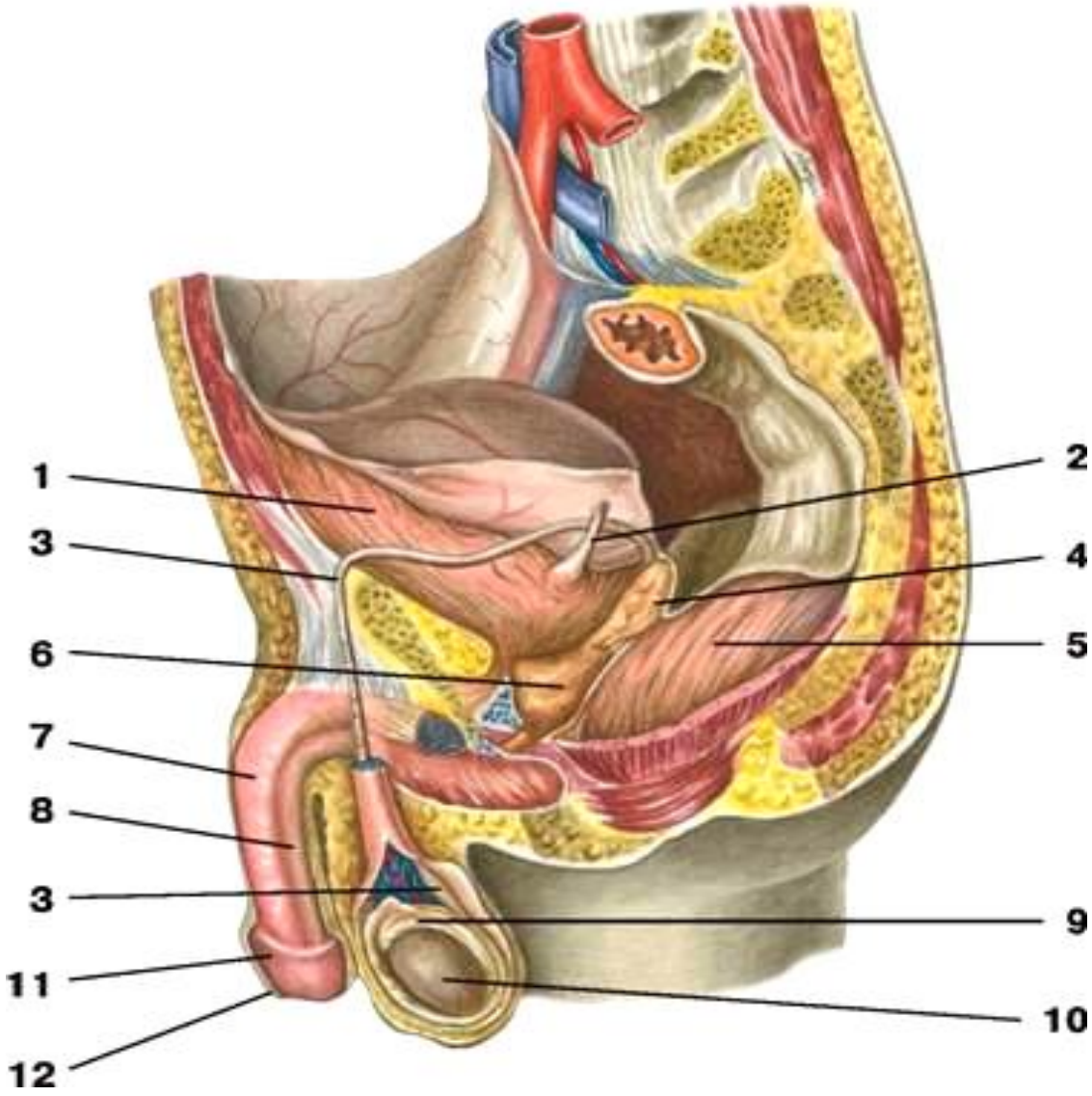
4. Questions for self-control

1). What is the role of the convoluted tubules of the testis?

2). The internal structure of the testis and the epididymis.

3). What are the VAS deferens?

5.Make notations to the pictures

Sagittal section of the male pelvis	
	
1	7
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3	9
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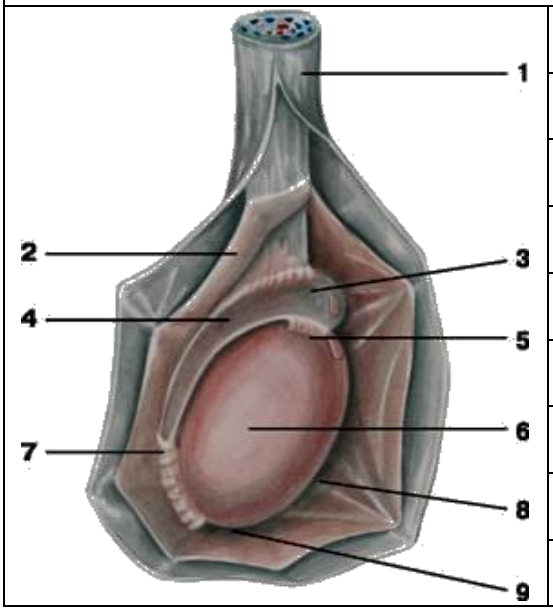
5	11
6	12

Egg-external structure	
	1. 2. 3. 4. 5. 6. 7. 8. 9.

The internal structure of the egg	

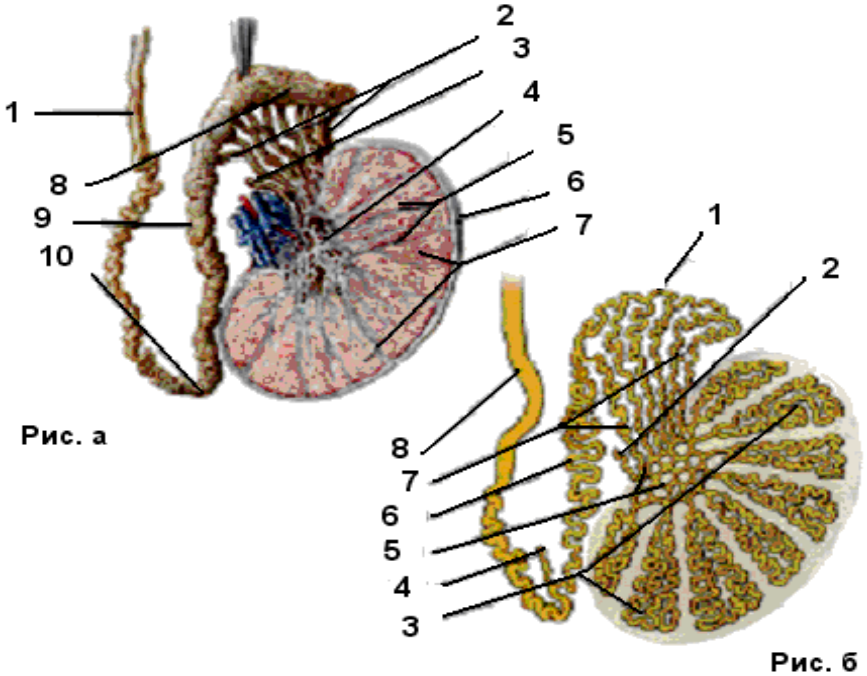



Рис. А	Рис. Б
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2.	2.
3.	3.
4.	4.
5.	5.
6.	6.

7.	7.
8.	8.
9.	
10.	

Methodical recommendations to out-of-class independent work on the topic:
ANATOMY AND TOPOGRAPHY OF THE SPERMATIC CORD,
THE VAS DEFERENS AND SEMINAL VESICLES.

1. Initial level of knowledge:

1. Topography of spermatic cord, VAS deferens and seminal vesicles.
2. Sections and walls of the VAS deferens.
3. The ratio of the seminal vesicle to the peritoneum.

2.Targets

The student needs to know:
1. The structure of the spermatic cord. 2. The elements that make up the spermatic cord. 3. The topography of the VAS deferens. 4. Topography and function of seminal vesicles. 5. Formation and location of ejaculatory canal.
The student must be able to:
1. Show on the drug, in the pelvic area, an ampoule of the VAS deferens. 2. Show on the sagittal saw of the male pelvis the course of the spermatic cord. 3. Show on the drug seminal vesicles and the exit site of the ejaculatory duct.

3. Tasks for independent work:

1.Make a diagram of the VAS deferens.

2.Explain how the ejaculatory duct is formed. _____

_____

3.What is the seed on the bubble. _____

_____

4. Questions for self-control

1. The course of the VAS deferens and its departments. _____

_____

_____

2. The structure of the VAS deferens wall. _____

_____

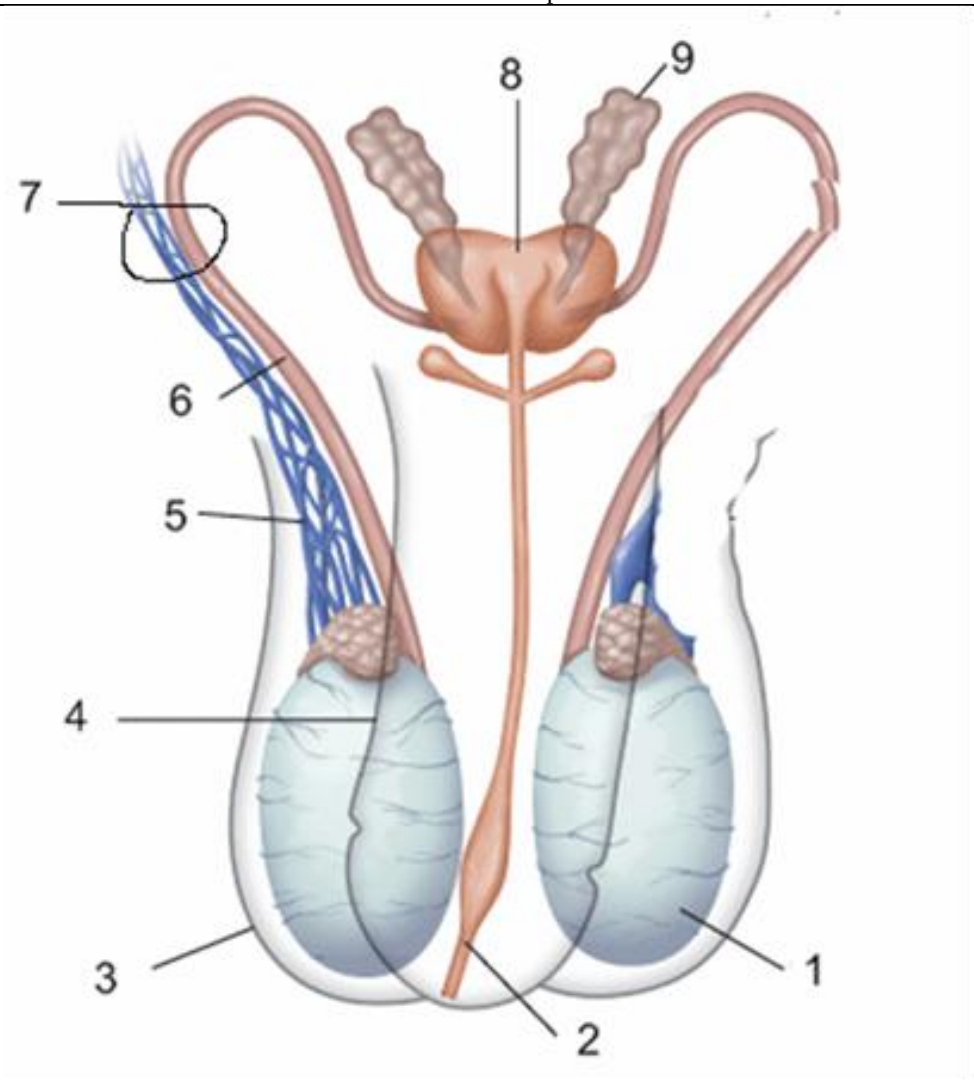
_____

3. Topography and functional role of the seminal vesicles. _____

_____

_____

5. Make a designation to the picture

The VAS deferens and spermatic cord	
	
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2	7
3	8
4	9
5	

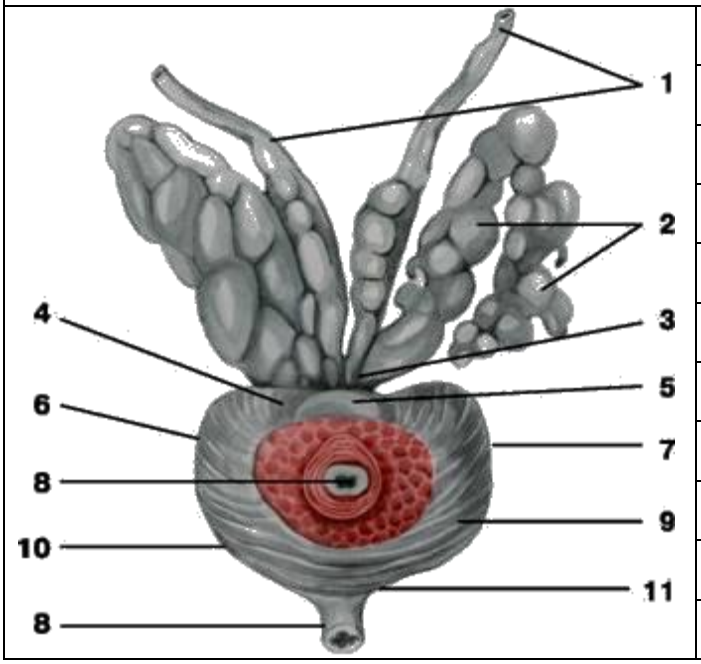
Methodical recommendations to out-of-class independent work on the topic:
GLANDS MALE REPRODUCTIVE SYSTEM: ANATOMY AND TOPOGRAPHY.

1.Initial level of knowledge:
1. Topography of the prostate gland.
2. What is the function of the prostate gland.
3. Topography of the bulbourethral gland.
4. What is the role of the bulbourethral glands.
2.Targets

The student needs to know:
1. Topography, structure and function of the prostate gland. 2. Departments of the prostate. 3. Topography, structure and function of the bulbourethral gland.
The student must be able to:
1. To show the range of drugs of the male genital organs the prostate and to determine the position of the right and left lobes. 2. Show the location of the bulbourethral gland on the drug.

3.Tasks for independent work:
1.What parts does the prostate have? _____
_____
2.Explain why the prostate gland is examined by inserting a finger into the rectum (per rectum). _____
_____
3.The bulbourethral glands are located _____
_____
4. Questions for self-control
1. What is the function of the prostate in the male body?
_____
2. What surface does the prostate have? _____
_____
4. What is the function of the male bulbourethral glands?

5.Make notations to the pictures

Prostate and seminal vesicles	
	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

Methodical recommendations to out-of-class independent work on the topic:
ANATOMY AND TOPOGRAPHY OF THE MALE EXTERNAL GENITALIA.

1. Initial level of knowledge:

1. What genitals are external.
2. the anatomical structure of the male penis.
3. The anatomical structure of the scrotum.
4. Age features of male genitals.

2. Targets

The student needs to know:
1. The name in Latin and Russian transcription of the male external genitalia 2. The process of urination in men. 3. The structure of the penis. 4. The contents of the scrotum.
The student must be able to:
1. Show the drug elements of the structure of the male penis. 2. Show external opening of the urethra, foreskin and prepucialna bag.

3.Tasks for independent work:

1.Specify which anatomical structures provide the process of urination and ejaculation.
_____
_____
2.The structure of the scrotal wall. _____
_____
3.The structure of the male penis. _____
_____
4.Continue missing definitions in the structure of the scrotum:
and.-_____ formed subcutaneous connective tissue, forming also the wall of the scrotum.
b.-_____ and is derived from the superficial fascia of the abdomen.
no.-_____ it comes from the fascia of the external oblique abdominal muscle.
d.-_____ formed by muscle bundles of transverse and internal oblique abdominal muscles.
d.-_____ it comes from the transverse fascia of the abdomen.

4. Question for self-control

1. What are the anatomical divisions has a penis? _____
_____
2. What are the shells of the scrotum, which are also called egg shells?

Guidelines for out-of-class independent work on the subject: the ANATOMY AND TOPOGRAPHY of the FEMALE GENITAL ORGANS.
ANATOMY AND TOPOGRAPHY OF THE UTERUS AND VAGINA.

1. Initial level of knowledge:
1. Development of female genital organs.
2. The structure of the pelvis
3. Classification of female genital organs and their topography.

2.Targets

The student needs to know:
1. Name in Latin and Russian transcription of the female genital organs. 2. The location of the uterus in the pelvic cavity. 3. The external structure of the uterus and its relation to the peritoneum. 4. The structure of the uterine walls. 5. Ligamentous apparatus of the uterus and its fixation. 6. Age-related changes in the uterus. 7. Malformations of the uterus and vagina. 8. The structure of the vaginal walls.

The student must be able to:

1. To name and show on corpse, female organocomplex on the sagittal sawing a female pelvis sections and the ligaments of the uterus.
2. Show the ligamentous apparatus of the uterus.
3. To name and show the separate layers of the uterine wall.
4. Name and show the cervix and its canal.
5. Show the external yawn of the uterus and the vaults of the vagina.
6. On the sagittal cut of the pelvis to show the location, walls and arches of the vagina.

3.Tasks for independent work:

1.The structure of the wall of the uterus _____

_____

2.Explain how the shape of external OS (uterine opening) is possible to determine parous and nulliparous woman.

_____

_____

3.Continue the sentence:

a) the surface layer of the uterus is presented _____

b) The middle layer of the uterine wall is called _____ or

_____

C) the Inner layer of the uterine wall is called _____ or

_____

4.The relation of the uterus to the peritoneum _____

_____

_____

5.Functional significance and structure of the broad uterine ligament _____

_____

6.The structure of the wall of the vagina _____

_____

4. Questions for self-control

1. What practical value has the rectouterine deepening? _____

_____

2. What is the hymen and where is it located?

_____

_____

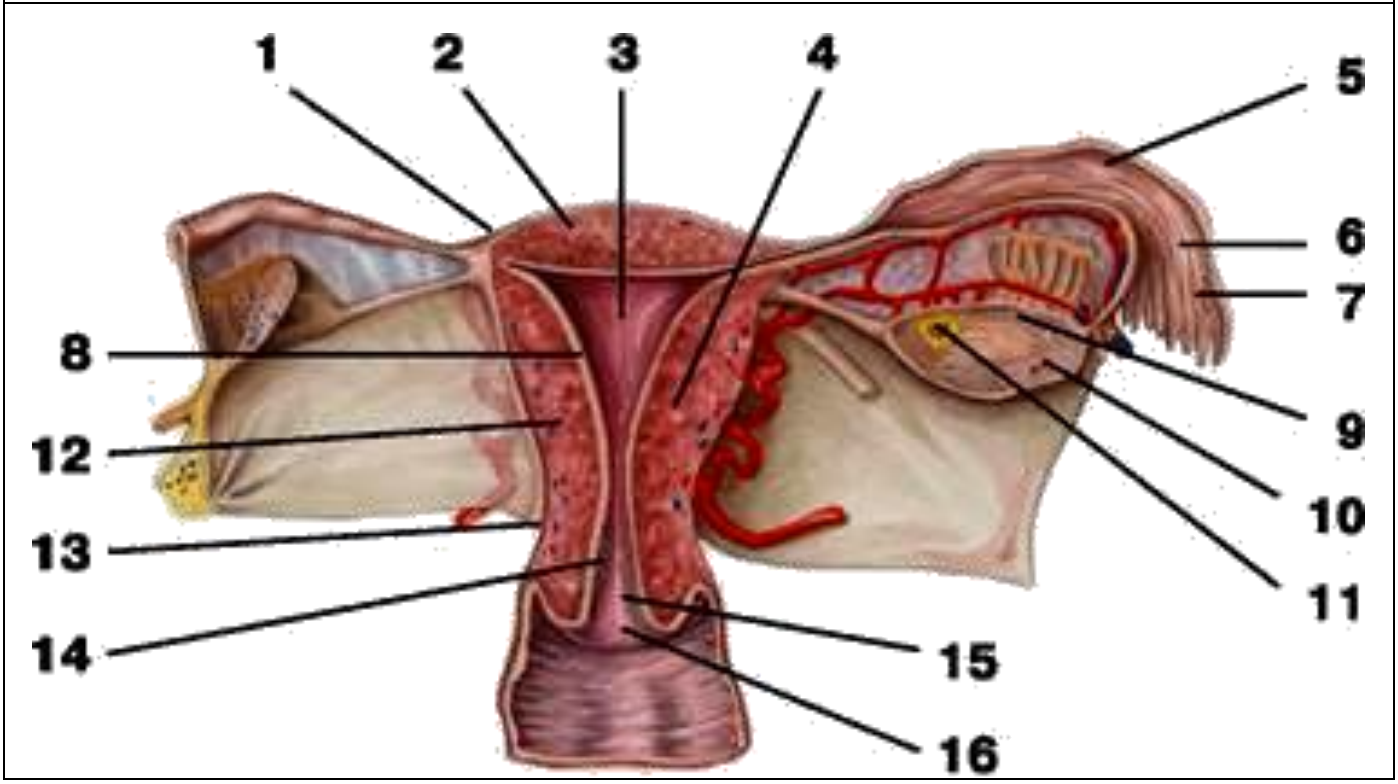
3. What are formed front and rear pillars folds of the vagina?

_____

_____

5. Make notations to the pictures

Uterus



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

Methodical recommendations to out-of-class independent work on the topic:
ANATOMY AND TOPOGRAPHY OF THE FALLOPIAN TUBES (OVIDUCTS), AND OVARIES.

1. Initial level of knowledge:

1. Development of fallopian tubes and ovary.
2. General structure and functional characteristics of female genital organs.
3. The functional significance of the fallopian tubes and ovaries.

2.Целевые задачи

The student needs to know:
1. Name in Latin and Russian transcription elements of the structure of the fallopian tube and ovary. 2. External structure and topography of the fallopian tube and ovary. 3. The structure of the fallopian tube wall. 4. The ratio of the fallopian tube to the peritoneum. 5. Ligaments and fixation of the ovary. 6. The internal structure of the ovary: cerebral and cortical substance. 7. The structure and location of the appendage of the ovary and periwinkle.
The student must be able to:
1. To name and show on the opened corpse and the isolated female organocomplex and separate preparations of a uterus fallopian tubes, ovary and their ligaments. 2. To name and show on specimens the departments of the fallopian tubes. 3. To call and to show the ligament of the ovary. 4. Name and show the mesentery of the fallopian tube and ovary.

3. Tasks for independent work:

1.Make a diagram of the structure of the fallopian tube

2.Make a diagram of the structure of the ovary

3.What parts are distinguished in the fallopian tube _____
_____

4.What surface is isolated in the ovary _____
_____

5.Continue phrases:

(A) the outside wall of the fallopian tube is covered _____

B) the Mesentery of the fallopian tube is part of _____
_____ uteri.

C) Ovary-female sex gland-covered outside _____

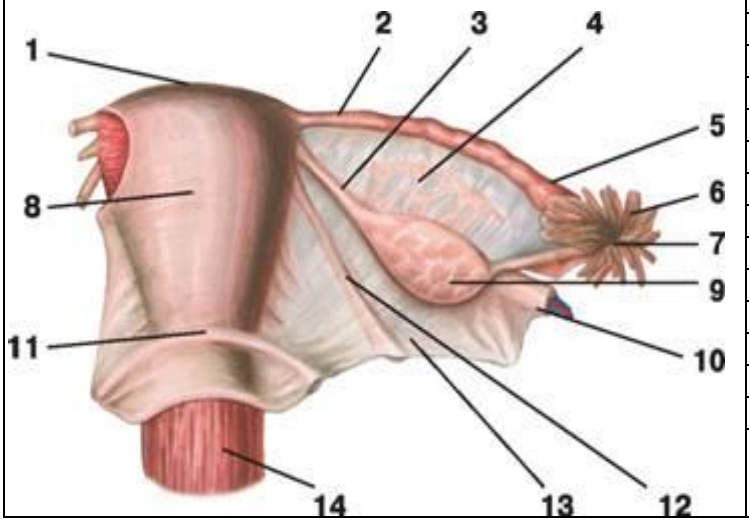
D) the fixing apparatus of the ovary include _____
_____

E) the Mesentery of the ovary is part of _____

4. Questions for self-control

1. The functional significance for the organism ovarian _____
_____
2. What provides fixation of the ovaries _____
_____
3. What layers is the wall of the fallopian tube _____
_____
4. What relief is the mucous membrane of the fallopian tube _____
_____

5. Make notations to the pictures

The internal female sex organs	
	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15.

Methodical recommendations to out-of-class independent work on the topic:
ANATOMY AND TOPOGRAPHY OF THE EXTERNAL FEMALE GENITALIA.

1.Questions to check:

1. What kind of education refers to the external genitals.
2. What structure have large and small labia.
3. What is the vestibule.
4. What is the function of a large iron threshold.
5. What structure has the clitoris.

2.Targets

The student needs to know:
1. The name in Latin and Russian transcription of the female external genitals 2. What is referred to the female genital area. 3. The structure of large and small labia, vestibule, large and small vestibular glands, bulbs vestibule.
The student must be able to:
1. Show on the drug the structural elements of the female external genitals: the location of the large and small labia, the outer opening of the urethra, the opening of the vagina, the vestibule of the vagina and large glands of the vagina.

3.Tasks for independent work:

1. Complete sentence.

Ah. The female sexual area include _____
_____
b. Large and small labia constrain _____
_____
B. in the thickness of the walls of the vestibule are located _____
_____
d. between the opening of the vagina and the clitoris opens _____
_____

4. Questions for self-control

1. What is the role of large glands (bartolino) threshold?
_____
2. What formations are located between the labia majora?
_____
2. What is the presentation of the clitoris? _____

Guidelines for out-of-class independent work on the subject:
the ANATOMY AND TOPOGRAPHY of MUSCLES AND FASCIAE of the PERINEUM.

Questions to check:

1. The structure of the large and small pelvis. Pelvis as a whole.
2. The lower (exit) hole of the pelvis, its boundaries and dimensions.
3. General characteristics of the perineum.

2.Targets

The student needs to know:
1. The name is in Latin and Russian transcription of the muscle and fascia of the perineum. 2. The boundaries and divisions of the perineum. 3. Classification of perineal muscles, their topography. 4. The beginning, attachment and function of the muscles forming the pelvic diaphragm. 5. The beginning, attachment and function of the muscles forming the urogenital diaphragm. 6. Fascia and tendon center of the perineum. 7. Differences in the structure of the male and female perineum.
The student must be able to:
1. Show on drug border of the perineum. 2. Show the muscles forming the pelvic diaphragm on the drug. 3. Name and show on the drug the muscles of the urogenital diaphragm. 4. Name and show on the drug organs passing through the urogenital diaphragm. 5. Name and show on the drug the superficial muscles of the perineum. 6. Show on the drug sciatic rectal fossa.

3.Tasks for independent work:

1. Make a diagram of the layered location of the muscles of the perineum.

2. Continue the phrase:

a) the Perineum is a skin-muscle-fascial layer located

_____

_____

b) the urogenital diaphragm is represented by muscles: 1) _____

_____

Two)_____

_____

C) Sciatic-rectal fossa lies _____

_____

_____

4. Questions for self-control

1. Specify what muscles make up a deep layer of the perineum? _____

_____

2. What is the difference between male and female crotch? _____

_____

_____

3. Specify bony landmarks of the perineum? _____

_____

4. What fascia lies between the muscles of the superficial and middle layers of the perineum?

_____

_____

5. What is the tendon center of the perineum? _____

THE FINAL LESSON ON THE TOPIC: "DIGESTIVE,
RESPIRATORY AND UROGENITAL SYSTEMS.
Questions for the modular lesson:
"THE DIGESTIVE SYSTEM"

1. The pitting of the liver
2. General characteristics of the peritoneum. The ratio of organs to the peritoneum. Ligaments mesentery.
3. General characteristics and structure of teeth.
4. Differences the small intestine from the colon.
5. The ratio of organs to the peritoneum
6. Ways of bile excretion
7. Development of digestive organs. Anatomy of the oral cavity.
8. Ligaments and folds of peritoneum
9. Ligament of the liver
10. The sinuses of the peritoneum
11. The structure of the lobules of the liver
12. The structure and topography of the 12 duodenal ulcer.
13. The structure and topography of peritoneum of the mesentery below the transverse colon.
14. The structure and topography of pharynx
15. The structure and topography of the stomach.
16. The structure and topography of the biliary tract.
17. The structure and topography of the sky.
18. The structure and topography of the liver. Features of blood supply.
19. The structure and topography of the esophagus.
20. The structure and topography of the pancreas.
21. The structure and topography of the rectum.
22. The structure and topography of the cecum.
23. Structure and topography of salivary glands.
24. The structure and topography of the colon.
25. The structure and topography of the small intestine.
26. Structure and topography of the language.
27. Peritoneal bags, their location and value. Large and small glands
28. The topography of the gall bladder
29. The topography of the liver
30. Topography of the peritoneum below the transverse colon
31. Course of the peritoneum in the pelvis
32. Course of the peritoneum above the transverse colon
33. Wonderful network of the liver

RESPIRATORY SYSTEM

1. The boundaries of the parietal pleura.
2. The ventricles of the larynx. Glottis.
3. Classification of laryngeal muscles. Muscles that change the tension of the vocal folds.
4. Classification of laryngeal muscles. Muscles that narrow and widen the glottis.
5. Microscopic structure of the lungs. Structure of acinus.
6. The muscles of the larynx
7. Nasal cavity, walls and communications
8. General characteristics of the cavity of the larynx, its importance.
9. The General plan of the structure of the respiratory system. The upper and lower respiratory tract. The course of the air jet.
10. Paranasal sinuses
11. Organs, forming the posterior mediastinum.
12. Divisions of the larynx. Voice.
13. Divisions of the mediastinum
14. Pleura, her sheets and departments. The sinuses of the pleura.
15. Pleural cavity. The boundaries of the lungs.
16. The eve of the larynx. The boundaries and the structure of the walls.
17. The sinuses and the dome of the pleura. Topography.
18. Actually the cavity of the larynx, its walls.
19. Mediastinum, departments.
20. The structure and topography of the lungs. Age features. Bronchial tree.
21. The structure and topography of the trachea. Age features.
22. Structures and messages of the nasal cavity. Paranasal sinuses.
23. Laryngeal joints and muscles acting on them
24. Joints and ligaments of the larynx.
25. The topography of the sinuses of the pleura
26. The topography of the content of the gates of the right and left lungs. Differences.
27. The topography of the trachea

28. The progress of the pleura
29. The cartilage and ligaments of the larynx. Cavity of the larynx.
30. Cartilage, joints and ligaments of the larynx

THE ORGANS OF THE UROGENITAL SYSTEM

1. Development and General plan of the structure of the urinary system. The progress of urine.
2. The structure and topography of the kidneys. Age features.
3. Shell and fixation of the kidneys.
4. Sellotape and topography of the kidneys. Muscle bed of the kidney.
5. A wonderful network of kidneys. The structure of the nephron.
6. The structure and topography of the ureter. His divisions and constrictions.
7. The structure and topography of the bladder. Relationship to the peritoneum.
8. The internal structure of the kidneys.
9. Prostate. Topography and age features.
10. The structure of the male urethra. Departments.
11. The internal structure of the testis and the epididymis.
12. The shell of the egg. The structure of the scrotum.
13. The VAS deferens of its departments. Ways of removing the seed.
14. External male genitals.
15. Structure, topography and age features of the uterus, its ligaments.
16. The structure of the parametrial.
17. Structure, topography and age peculiarities of fallopian tubes.
18. Structure, topography and age characteristics of the ovary. Peritoneal ligaments.
18. Structure, topography and age characteristics of the vagina.
19. The external female genitals.
20. Topography of the female pelvis. Course of the peritoneum.
21. Topography of the male pelvis. Course of the peritoneum.
22. Muscles of the perineum.
23. Fascia of the perineum.

Для иностранных студентов, обучающихся по специальности 31.05.01 General medicine (Educational program, partially implemented in English)

List of literature:

Basic:

п/№	Наименование	Автор (ы)	Год, место издания	Кол-во экземпляров	
				в библиотеке	на кафедре
1	*2*	*3*	*4*	*7*	*8*
1.	Textbook of human anatomy : For medical students. In 2 volumes-	Sapin M. R., Kolesnikov L. L., Nikitjuk D. B.	M. : 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.	M. : 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
1	*2*	*3*	*4*	*7*	*8*
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	