

BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

Department of human anatomy

GUIDELINES

Student's independent work during the preparation to practical lesson

<i>Academic discipline</i>	<i>HUMAN ANATOMY</i>
<i>Module №</i>	<i>1</i>
<i>Content module №</i>	<i>4</i>
<i>The topic of the lesson</i>	The muscles of the chest and abdomen
<i>Course</i>	<i>1</i>
<i>Number of hours</i>	<i>3</i>

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1. Specific goals:

After completing the course, the student must know and be able to:

1.1. Characterize muscles of the lungs as the body of classified' lung and shape, Structure and function;

1.2. Classify muscles of the lungs and breast origin and topography;

1.1 To explain the development of 'abdominal muscles:

1.2. Treat malformations of 'abdominal muscles;

1.3. To analyze the structure and topography of the abdominal muscles;

The basic level of training:

2. Students must know and be able to:

2.1. Call and demonstrate bones skeleton and pelvic belts;

2.2. Call and show the connection of the body and the bones of the pelvic girdle;

2.3. To demonstrate on the skeleton the characteristic features of the spine and possible movements in the spinal column;

2.4. Call and demonstrate to the drug (skeleton) of the connection body bones;

2.5. Call for preparation and demonstrate muscles of the abdomen ;

2.6. To know the features of the topographical formations of the anterior abdominal wall (white abdominal line, abdominal diaphragm pencil, inguinal canal);

2.7. To be able to find, and called on the body to show the boundaries, walls, holes content of these lesions and know their practical value for medicine;

2.8. To know origin and topography called inguinal bandages;

2.9. To describe the beginning, attachment and function of 'abdominal muscles;

3. Organization of educational content material.

Teaching material are taught in a logical sequence involving structural logic, tables, figures that reflect the content of the main theme for the practical classes.

- Muscles that form the anterior abdominal wall;

- Muscles forming the side wall of the abdomen;

- Muscles that form the back wall of the abdomen;

- Development of 'abdominal muscles in embryogenesis;

- Features of the structure of the anterior abdominal wall;

- Weaknesses abdominal wall;

- The rectus abdominis muscle: the beginning, the attachment feature.

- Abdominal external oblique muscle: the beginning, the attachment feature;

- Inner skew muscle of the abdomen: beginning, attachment, function;

- Transverse abdominal muscle: beginning, attachment, function; .

- Square muscle of the lumbar: the beginning, attachment, function;

- White line of the abdomen: the established, bu Dowa and knowledge;

- Inguinal canal: walls, rings, content, functional significance, sex differences;

4. Educational process at practical lesson

4.1. Preparatory stage.

4.1.1. Formation of motivation for targeted learning activities in the study of the anatomy of the abdominal muscles with the aim doctor's practice:

- Study of abdominal muscles, abdominal topography encourages further study of the anatomy of these structures with the aim of correcting defects of their professional development;
- Study of anatomy topographic anatomical structures of the abdominal wall foundation interpreting normal and pathological functions, expanding the focus finding ways to correct pathological processes;
- Thorough knowledge of the anatomy of the muscles and fascia of the abdomen expand the choice of profession in medicine, surgery, cosmetology.

4.2. The main stage. Training on anatomical drugs, dummies, a corpse of a person is organized on the structure of the contents of the educational material, and situational tasks are solved. Individual techniques of the teacher are implemented to facilitate the study of complex anatomical components.

Muscles of the chest

Classification: distinguish surface (large and small pectoral muscles, subclavian muscle and the anterior serratus muscle) and deep (own) - external, internal, profound Intercostal muscles.

5.1.1. Muscles of the lungs and chest

5.1.2. The surface of 'lung and chest

- **Large pectoral muscle (m. Pectoralis major)** begins with three parts: clavicle- medial half of the clavicle; Fetal-ribbed-from the anterior surface of the udder and cartilage of the upper six ribs; Abdominal part - from the anterior wall of the vagina of the direct muscle of the abdomen. Muscle beams are converted, and the tendons rotate so that the abdominal part, attaching it, is on top, and clavicular - from the bottom of the crest of the large thigh of the humerus.

And attached to the beak bone blades. The muscle has a triangular shape and lies under the large chest muscle. He pulls the shoulder blade forward and down, and is also an auxiliary respiratory muscle.

- **Subclavian muscle (m. subclavius)** starts from the cartilage of the first rib and attached to the acromial end of the clavicle. The muscle pulls the clavicle medially and downwards, and strengthens the fixing apparatus of the dermal-clavicular joint.

- **M. serratus anterior**

5.1.3. Deep muscle of the chest

- **External Intercostal muscles (mm. Intercostales interni)** starting from the lower edge of the rib down and go forward. The muscles provide an act of breathing, raising the edges.
- **Internal intercostal muscles (mm. intercostales interni)** starting from the lower edge of the rib directed upwards and forwards. Attaching to the lower

edge of the located rib, they occupy the inter-ribbed intervals from the edge of the upper to the edges. The muscles lower the ribs, providing an act of exhalation.

- **Mm. subcostales** starting from the top edges near the corners X - XII ribs, directed upwards and forwards along the internal intercostal muscles pass one or two ribs and then attached to the lower edge of the upper edge.

- **Transverse muscle of the chest (m. transverses thoracis)** starting from the back surface of the xiphoid process, the body of the sternum and individual prongs attached to the inner surface of II - VI rib cartilage. The muscle is a synergist of the inner intervertebral and subclavian muscles.

5.1.4. Diaphragm

Diaphragm- vital anatomical structure, the main breathing muscle and part of the abdominals. Ascending, when contracted, the diaphragm forms a negative pressure in the pleural cavity and as a consequence, inhale. Diaphragm muscle bundles starting from the back surface of the sternum, VII - XII and lumbar vertebrae. These three muscle parts are converted, continue to the tendon center. There is a hole in the hollow vein, through which the lower hollow vein passes from the abdominal cavity to the chest.

5.1.5. Chest Fascia

- **Fascia superficialis** is in the area of the breast starts collarbone goes down and forks on the surface and deep leaves. These leaves cover the front and rear of the thoracic gland, forming its capsule, from which the connective tissue membranes, which divide it into particles, go deep into the glands.

- **Fascia pectoralis**

- **Fascia clavipectoralis** is deep pectoral fascia sheet within the breast and clavicular-pectoral triangles. It covers the subclavian and small pectoral muscles.

- **Fascia thoracica** covers the outer Intercostal muscles and ribs.

- **Fascia endothoracica** covers the inner surface of the chest and, in particular, internal and deepest Intercostal muscles, muscle and internal transverse surface ribs.

Musculi abdominis

They are divided into:

- the front group;

- side group;

- back group.

The muscles of the anterior abdominal group include:

Rectus abdominis muscle (musculus rectus abdominis), located vertically on both sides of the anterior midline (linea mediana anterior), extended top and narrowed down. Has tendinous tendons (intersectiones tendineae) and vagina musculi recti abdominis. Beginning from the pubic crest (crista pubica) and the pubic symphysis (symphysis pubica).

Attachment: to the front surface of the xiphoid process (facies anterior processus xiphoidei) and the outer surface of the V-VII costal cartilage (facies externa cartilaginum costalium quintae-septimae [V-VII]).

Functions:

- a fixed spine (columna vertebralis) and pelvic girdle (cingulum pelvicum) lowers ribs (costae) pulls the chest (sternum and ribs) and folds down the spine (columna vertebralis);
- with a fixed thorax (thorax) raises the pelvis (pelvis);
- participates in the formation of abdominal press (prelum abdominale).

Pyramidal muscle (musculus pyramidalis), located in the front lower part of the rectus abdominis muscle (pars inferior musculi recti abdominis), inside the vagina rectus abdominis muscle (vagina musculi recti abdominis). It belongs to rudimentary muscles. Beginning from the pubic crest (crista pubica).

Attachment: to the bottom of the white line (pars inferior lineae albae).

Function: pulling the white line (linea alba).

To the lateral group of abdominal muscles include:

1. Abdominal external oblique muscle (musculus obliquus externus abdominis). It is the widest musculi abdominis and is located superficially on the posterior, anterior and lateral surfaces of the abdomen and partly in the breast (pectus).

Start: eight teeth of external surface with V-XII ribs and sent down and pryseredno, moving into a broad aponeurosis (aponeurosis), which is intertwined with fibers aponeurosis (aponeurosis) opposite external oblique abdominal muscles (musculus obliquus externus abdominis), to form Front line line (linea mediana anterior) white line (linea alba). The course of muscle fibers coincides with the course of external intervertebral muscle fibers (mm intercostales externi).

Attachment: lower side aponeurosis fibers are attached to the outer lip of the iliac crest (labium externum cristae iliacaе), and pryseredno - to the pubic tubercle (tuberculum pubicum) and the pubic symphysis (symphysis pubica). Lower thickening of the aponeurosis of this muscle (aponeurosis musculi obliqui externi abdominis), 2-3 cm wide, bending through the groove in the middle, forms a ligamentum inguinale that extends from the upper anterior iliac anterior superior (spina iliaca anterior superior) To the pubic tubercle (tuberculum pubicum). Medully cortex is cleaved and forms a medial leg (crus mediale) and lateral leg (crus laterale), between which there are fibrae intercrurales. These legs obmezhovuyut surface hvynne pa ring (anulus inguinali s Superficialis)

2. Musculus obliquus interns abdominis) is located deep external oblique abdominal muscles (musculus Obliquus Externus abdominis), the second is the muscle layer of the abdominal wall.

Beginning from the front two-thirds of the intermediate line of the iliac crest (*linea Intermedia Cristae iliaca*), the lateral two-thirds of the inguinal ligament (*lig. inguinale*), breast-lumbar fascia (*fascia thoracolumbalis*).

Attachment: fan-shaped muscle bundles diverge and are attached to the outer surface of the lower three ribs and tendons woven into a wide white line of the abdomen (*linea Alba abdominis*); lower muscle fibers with fiber transverse abdominal muscle (*m. transversus abdominis*) is part of the spermatic cord (*funiculus spermaticus*) and form cremaster Muscle (*m. cremaster*). The course of the muscle fibers of the muscle fibers is perpendicular to the external oblique abdominal muscles and responsible course of muscle fibers internal intercostal muscles (*mm. Intercostales interni*).

Features: - unilateral reduction in the back trunk (*truncus*) in its side;
-with two-way reduction: - down ribs (*costae*);
-participates in the abdomen (*prelum abdominale*)

3. Musculus transverses abdominis is located deepest for internal oblique abdominal muscles (*musculus Obliquus Interns abdominis*), his muscle bundles directed transversely.

Start from the inner surface of VII - XII ribs, the front of the inner lip of the iliac crest (*pars Anterior Labi Interns c ristae iliaca*), breast-lumbar fascia (*fascia thoracolumbalis*), the lateral third of the inguinal ligament (*lig. inguinale*).

Attachments: - muscle bundles pass anteriorly to the aponeurosis on the venous line (*linea semilunaris*), which runs from costal arch (*arcus costalis*) down to the inguinal ligament (*lig. iunguinale*).

Function: lowers ribs (*costae*) and reduces the size of the abdominal cavity (*cavitas abdominis*), is the main abdominal muscles (*prelum abdominale*). In place of transition of muscle fibers in the tendon fibers aponeurosis located a venous line (*linea semilunaris*), and bottom - Inguinal sickle (*falx inguinalis*).

To the back group of muscles of the stomach belongs:

Square loin muscle (musculus quadratus lumborum). It has a rectangular shape and is located on the side of the transverse processes of the lumbar vertebrae (*processus transversal vertebrarum lumbalium*).

Start from the inner lip of the iliac crest (*labium internum cristae iliaca*), lower transverse processes of the lumbar vertebrae (*processus transversi vertebrarum lumbalium*), breast-lumbar fascia (*fascia thoracolumbalis*).

Attachment: to the upper transverse processes of the lumbar vertebrae (*processus transversi vertebrarum lumbalium*), the lower edge XII ribs (*margo inferior costae duodecimae [XII]*).

Functions: - for bilateral reduction keeps the spine (*columna vertebralis*) vertically and bending (bend) of the lumbar spine (*pars lumbalis columnae vertebralis*);

- shall XII edge down;
- with one-sided cant reduction torso (truncus) at his side.

Fascia abdomen.

Within the abdominal wall are the most developed abdominal fascia.

1. The superficial fascia of the abdomen ; in the upper abdominal wall is thin, down significantly denser and characterized by the presence of elastic fibers. For midline superficial fascia merges with the white line and bottom-of inguinal ligament. In the lower part, over the symphysis formed dense strands called called 'yazkamy penis :

a) lig . fundiforme penis , which, beginning from the pubic symphysis, giving two legs, covering the sides sexual tsp en ;

b) a bunch, tying the penis, lig . suspensorium penis (in women suspending ties clitoris, lig . suspensorium clitoridis), stretched in Eid pubic symphysis to the back surface of the penis (clitor). Fascia bands in this connection partly reinforces ARE tendon bundles direct and external oblique abdominal muscles.

2. Lumbar-iliac fascia covering the abdominal wall retrograde lumbar-iliac of s with . This fascia has a two-part lumbar and iliac portion, which cover the relevant parts of the muscle. On the side wall of the abdominal lumbar-iliac fascia passes into the lateral fascia.

3. Transverse fascia , fascia transversalis , cover aye inner surface of the transverse muscle of the abdomen and the inner surface of the rear leaf rectus sheath and lower linea arcuata - internal, rear surface rectus muscle.

Down it merges with bent back and towards the top edge pas guilty th connection. In the area and navel fascia transversalis more dense and called umbilical fascia. IN section and the lower part of the white line due to the concentration of the longitudinal beams formed brace white line, adminiculum lineae albae ,

The back (inner) surface of the front wall of the abdomen (facies posterior parietis anterioris cavitatis abdominis), which is covered by parietal peritoneum (peritoneum parietale), are:

- steam median umbilical fold (plica umbilicalis mediana);
- steam medial umbilical fold (plica umbilicalis medialis);
- steam lateral umbilical fold (plica umbilicalis lateralis). Between the medial and lateral umbilical folds (plicae umbilicales medialis et lateralis) located medial inguinal fossa (fossa inguinalis medialis), which corresponds to the superficial inguinal ring (anulus inguinalis superficialis) and through which direct inguinal (hernia) hernia (herniae inguinales rectae).

vagina muscoli recti abdominis rectus abdominis muscle

vagina muscoli recti abdominis is:

- a front plate (lamina anterior);
- back plate (lamina posterior). These plates have a different structure above and below the navel.

The front plate vagina rectus abdominis muscle (lamina anterior vaginae musculi recti abdominis) above the navel established:
- aponeurosis of the external oblique muscle of the abdomen (aponeurosis musculi obliqui externi abdominis);
- front leaf aponeurosis of the internal oblique m 'yaza abdomen (folium anterius aponeurosis musculi obliqui interni abdominis).

The back plate vagina direct m 'yaza abdomen (lamina posterior vaginae musculi recti abdominis) is formed :

- above the navel :
- rear leaf aponeurosis of the internal oblique m 'yaza abdomen (folium posterius aponeurosis musculi obliqui interni abdominis);
- aponeurosis cross of 'yaza abdomen (aponeurosis musculi transversi abdominis);
- transverse fascia (fascia transversalis); - parietal peritoneum (peritoneum parietale).

Students independently study the structure of active consultation with the teacher.

4.3. Final stage.

- *Assesses the current activity and the activity of each student during classes;*
- *A standardized final control of students' knowledge.*
- *Announced evaluation of the student and put in the Log of visits and student achievement;*
- *Group leader fills in assessment roll of the success and attendance of students, teacher assured them his signature;*
- *Teacher informs students with content topic next session, recommended instructional techniques training.*

6. Applications. Tools for testing:

- *Tests*
- *Situational task*
- *Control questions and tasks within the meaning of the theme classes*
- *Quiz entry-level training of students*
- *Quiz final level of training.*

Control questions and tasks within the meaning of the theme sessions.

- .1. To which groups are the muscles of the abdomen divided?*
- 2. What are the abdominal muscles?*
- 3. Describe and demonstrate on the preparation of the direct muscle of the abdomen: start, attachment, function.*
- 4. What is the feature of the structure of the direct muscle of the abdomen?*

5. Describe and demonstrate the pyramidal muscle of the abdomen on the preparation: start, attachment, function.
6. Describe and demonstrate the external skew muscle on the preparation abdomen: beginning, attachment, function.
7. What are the peculiarities of attachment of the lower part of aponeurosis the outer skeletal muscle of the abdomen?
8. Describe and demonstrate on the preparation the internal muscle abdomen: beginning, attachment, function.
9. Features of attaching aponeurosis of the internal oblique muscle abdomen: describe and demonstrate on the drug.
10. Describe and demonstrate on the drug the transverse abdominal muscle: start, attachment, function.
11. Describe and demonstrate square muscle on the preparation Lumbar: beginning, attachment, function.
12. What fascias are distinguished in the stomach area?
13. What does it cover with its own fascia of the abdomen? What are the features of its attachment?
14. What constitutes intraperitoneal fascia of the abdomen? What are its features? attachment?
15. Describe and demonstrate on the preparation of the vagina of the direct muscle stomach Features of the structure of the walls of the vagina of the direct muscle of the abdomen.
16. List the structures that form the front wall of the vagina direct the abdomen in the upper part of the abdomen and in the lower one.
17. List the structures that form the back wall of the vagina of the direct m ' the abdomen in the upper part of the abdomen and in the lower one.
18. Define the concept of "white line of the abdomen", to demonstrate on the drug.
19. Describe the structure of the white abdominal line above and below the navel.
20. Describe the formation of the umbilical ring, to demonstrate the umbilical cord ring on the drug.
21. To define the concept of "inguinal canal", to demonstrate.
22. What is formed a superficial inguinal ring?
23. Where is the deep inguinal arsenal located?
24. What is the upper wall of the inguinal canal formed? To demonstrate
25. What is the bottom wall of the inguinal canal formed? Demonstrate
26. What is the content of the inguinal canal?
27. What is the front wall of the inguinal canal formed? To demonstrate.
28. What is the rear wall of the inguinal canal? Show .

Control questions and tasks to check the final level of training of students.

- 1. List and demonstrate the muscles of the anterior abdominal wall.*
- 2. What muscle of the abdomen is multicutal? Name and show .*
- 3. What muscle of the abdomen stretches the white line of the abdomen? To demonstrate on the dairy.*
- 4. List and demonstrate the side wall muscle on the preparation stomach*
- 5. Name and show the muscle of the abdomen, which begins with the outer surface of the lower eight ribs.*
- 6. Name and show on the muscle of the stomach, which form the muscle-lifting egg.*
- 7. Name and show on the muscle of the stomach that is act as the abdominal press.*
- 8. Demonstrate the drug and call the muscle of the abdomen, which is for the fixed spine draws the twelfth rib to the bottom, reinforcing sight*
- 9. What is the fascia of the abdomen inserts the outer skew muscle of the abdomen, the front wall of the vagina of the direct muscle of the abdomen, the white abdominal line? Demonstrate on the drug.*
- 10. Aponeurotic leaves of which the muscles form the front wall the vagina of the direct muscle of the abdomen in the upper and lower parts? Describe and show.*
- 11. Aponeurotic leaves of which the muscles form the back wall the vagina of the direct muscle of the abdomen in the upper and lower parts. Describe.*
- 12. Name the weak areas of the anterior abdominal wall.*
- 13. What is the white abdominal line formed?*
- 14. Name the structures contained in the inguinal channel in men and women.*
- 15. To name and demonstrate on the drug the structures that restrict the external inguinal ring.*
- 16. What structure is formed by the lower edge of the aponeurosis of the external skeletal muscle of the abdomen?*
- 17. What fascia of the abdomen forms the posterior wall of the inguinal canal?*
- 18. What structures form the fibers of the lower segment aponeurosis of the outer oblique abdominal muscle at the attachment point to pubic tubercle?*
- 19. What is linea arcuata? Where is she located?*
- 20. What is the front wall of the inguinal canal formed? Describe and show .*
- 21. Should you see how the lower wall of the inguinal canal is formed? Write and demonstrate .*

22. What is the upper wall of the inguinal canal formed? Describe and show.