BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

Department of human anatomy

GUIDELINES
Student's independent work during the preparation to practical lesson

Academic discipline	*HUMAN ANATOMY*
Module №	*1*
Content module	*12*
The topic of the lesson	**Muscles of head; diaphragm**
Course	*Medical 1,2,3,4, military,dental*
Number of hours	*3*

Kiyv – 2017

1. Specific objectives:

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

1.1. Explain the development of the muscles of the head;

1.2. Define the concept of " the muscles of the face "and their features;

1.3. Define the term "chewing muscles" and their features;

1.4. Describe the topography and the structure of the muscles of the head

1.5. Describe the location and functional value of chewing muscles fascia;

1.6. Describe and demonstrate to the drug (dummies) chewing muscles, Start, fastener, function;

1.7. Describe and demonstrate on the preparation (dummies) the muscles of the skull's arch, the beginning, fastening, function;

1.8. Describe and demonstrate to the drug (dummies), the muscles of the ear, early, fasteners, function;

1.9. Describe and demonstrate on the preparation (dummies) the muscles surrounding the cleft of the eyelids, the beginning, fastening, function;

1.10. Describe and demonstrate on the preparation (dummies) the muscles surrounding the nostrils, the beginning, fastening, functions;

1.11. Describe and demonstrate on the preparation (dummies) muscles that surround the mouth, the beginning, fastening, function;

1.12. Describe and demonstrate the aponeurotic helmet on the preparation (dummies), its shape, the attachment to the skin of the skeletal skull, functional significance;

1.13. Describe and demonstrate on the preparation (molds) the temporal fascia, the beginning, the division into leaves, the location relative to other anatomical structures, attachment, function;

1.14. Describe and demonstrate to the drug (dummies) buccal-pharyngeal fascia top, fasteners, function;

1.15. Describe and demonstrate to the drug (dummies) chewing fascia top, fasteners, function;

1.16. Describe and demonstrate on the preparation (molds) the parotid fascia, the beginning, the division into leaves, the location relative to other anatomical structures, attachment, function;

2. Basic level of training

Students must know and be able to:

2.1. Identify and demonstrate:

- *Facial skull, brain skull;*
- *Skull as a whole;*
- *Joints of skull bones;*
- *Temporomandibular joint;*

2.2. Development of the muscles of the head;

2 .3. Identify topographic areas of the head;

3. Organization of educational content material

Study material is studied using:

- *Corpse human skeletal head and neck;*
- *Dummies, tables, drawings on the topic .*

The muscles of the face (m. faciei):

Face muscles develop from the mesenchyme second gill arches and placed under the skin surface, have a circular or radial direction. The circular muscles are switches and are located around the holes in the head area. Radial muscles are expanders. Unlike other skeletal muscles, the muscles of the face from the skull bones begin and end in the skin, so the site location of the muscle in the face of the superficial fascia not, except buccal muscle. In contraction, facial muscles form complex movements - facial expressions that express the emotional state of a person (joy, sadness, fear, anxiety, surprise, admiration, etc.).

Muscles of the skull:

M. epicranius *consists of the following three parts: head-neck-muscles, temporo-parietal muscle and aponevrotychnoho helmet.*

Frontal-occipital muscle (m. occipitofrontalis) *is the occipital and frontal abdomen, between which the aponeurosis of the muscle - tendon helmet (galea aponeurotica).*

1) **venter occipitalis** *starts at the highest line nuche and back of the base of the mastoid process of the temporal bone and attached to aponevrotychnoho helmet. The caudal abdomen pulls the aponeurotic helmet together with the scalp back; Transverse folds at the head are smoothed out.*

2) **venter frontali** *starts helmet at the front edge of the scalp and eyebrows woven into the skin and in the middle of the circular muscle of the eye. Rises an eyebrow, with the formation of transverse folds of the skin on the forehead.*

M. temporoparietalis *starts with side of the helmet and is attached to the inner surface of the cartilage of the ear. Pulling the ear canker up.*

M. procerus *starts from the outer surface of the nasal bone and woven into the skin of the forehead between the eyebrows. Draws the skin of the forehead downwards, forming transverse folds of the skin in the area of hypertension. Gordian muscle is an antagonist of the frontal abdominals of the occipital muscle, contributing to the spreading of transverse folds at the forehead.*

Muscle -zmorschuvach eyebrows (m. Corrugator supercilii) *starts in the middle part of the daily brivnoyi arc woven into bones and skin eyebrows, the rest of the beams This muscle is interwoven with the bundles of the circular muscle of the eye. Draws an eyebrow to the median line, with a double*

contraction, bridges the eyebrows, forming vertical folds of the skin between them.

Ear muscles:

The muscles of the auricle in humans develop weakly.
There are three ear muscles:

-M. auricularis supeior *starts from the side of the helmet and aponevrotychnoho temporal fascia and attached to the inside of the ear at its base. Pulling the ear canker up.*

M. auricularis anterior *starts from the temporal fascia and cartilage attached to the external auditory canal. Draws the ear bowl forward.*

M. auricularis posterior *starts from the mastoid process and attached to the rear convex surface of the ear at its base. Pulling the auricle back.*

Eye muscles :

M. orbicularis oculi *is age-specific and deep orbital parts:*

- pars orbitalis starts from the bow of the frontal bone frontal bone and the anterior lacrimal crest of the maxilla, the average old-age relationships; Muscle bundles are directed up and down, are directed to the side of the ocular fossa, at the lateral edge of the orbit the upper and lower bundles converge, forming a muscular ring; From the top into the deep bundles of the inferior part of the muscle of the frontal abdominal muscles of the occipital-frontal muscle and of the muscle-shrinker eyebrows. The occipital part of the eye closes the eye, forming fan-shaped wrinkles on the skin of the prostate gland; Shifts the eyebrow downward and simultaneously draws the skin of the cheek upward.

- pars palpebralis starts at the average old-age called bandages, front wall of the lacrimal sac and attached to the lateral ligament in old-age and periosteum of the orbit. The eyelid part shines eyelids, distributes the tear on the front surface of the eyeball.

- pars profundal starting from the rear of lacrimal bone lacrimal crest and the back wall of lacrimal sac and woven into age-specific circular muscle of the eye and lacrimal sac wall. Muscle fibers shrinking, expanding the tear-up bag, contributing to the outflow of tears in the nasal cavity through the nasopharyngeal duct.

Muscles surrounding the nostrils:

M. nasalis *has:*

-Transverse part (pars transversa) starts from the collar increases canines and incisors at the front surface of the upper jaw; The muscle bundles are directed upward and moderately, pass into the subtle aponeurosis, which overlaps through the cartilaginous part of the back of the nose and continues to the

muscle of the same name on the opposite side; The transverse part of the right and left nasal muscles narrows the openings of the nostrils, pressing them to the nasal membrane;
- pars alaris starts from the alveolar surface of the upper jaw just below and in the middle of a transverse section; Muscle bundles are directed upward and moderately, woven in the skin of the nose wings; The wing part of the nasal muscle pulls the nose wing down and aside, extending the nostrils.

The muscles surrounding the mouth are:

m. orbicularis oris *has:*
- pars marginalis located in the peripheral parts of the muscle. It is formed both by circular muscular beams and by the bundles of adjacent adjacent facial muscles, especially those located near the corners of the mouth; ;
- pars labialis lies in the thick lips, her muscle bundles pass from one corner of his mouth to the contrary, woven into the skin and mucosa of the upper and lower lips. The muscular bundles of the lobe are surrounded by an oral cleft.
The narrow muscle of the mouth narrows and closes the mouth, slips forward and lifts them inside; Participates in acts of sucking, chewing and articulation.

M. depressor anguli oris *starting from the lower edge of the front third of the body of the mandible side of the hole and woven into a skin area of the angle of the mouth and upper lip; Drops the corner of his mouth and pulls him somewhat aside.*

M. depressor labi inferioris *starts from the lower edge of the front of the base of the lower jaw, lower hole and attached to the skin and mucosa of the lower lip, and goes into the circular muscle of the mouth; lip and pulls it somewhat aside, with a double contraction, the lip turns out, gives the person a form of irony, amount, disgust.*

M. mentalis *starts from the collar elevations lower incisors and canines and woven into the skin of the chin; Raises the skin of the chin upwards, with the appearance of dimples on it, contributes to the protrusion of the lower lip forward.*

M. levator anguli oris *starts with holes of the upper jaw and the skin is woven into the corner of the mouth and the circular muscle of the mouth; Pulls the corner of the mouth up and aside.*

M. levator labii superioris *starts infraorbital edge of the body of the upper jaw and the skin is woven into a corner of his mouth, upper lip, nose and wings nasolabial fold; Raises the upper lip and nose, forms a nasopharyngeal fold.*

M. levator labii superioris et alaeque nasi *starts from the frontal bone of the upper jaw and is woven into the skin of the upper lip and nose wings ;Raises his lip and nose.*

M. zygomaticus minor *starts from the front surface of the zygomatic bone and the lateral edge of the muscle - lifts the upper lip and the skin is woven into the corner of the mouth and upper lip; Raises the angle of the mouth and pulls it aside, deepens the nasal-pleural fold, is a supportive muscle of laughter.*

M. zygomaticus major *starts from the zygomatic bone and attached to the corner of the mouth and upper lip; Pulling the corner of the mouth up, is the main muscle of laughter.*

M. buccinator *starts from the oblique line of the mandible, alveolar large increases in teeth of the upper and lower jaws, the front edge of alar-mandibular joint, muscle bundles sent it back and medial to the corner ofthe mouth, partially overlap and are continuing In the circular muscle of the mouth; corner of the mouth pulls back and forth, straining cheek to cheek teeth presses, pushes out the content of the oral cavity and air.*

M. risorius *starts chewing and parotid fascia, muscle bundles pass it back and pryseredno and woven into the corner of the mouth and skin circular muscle mouth; Pulls the corner of his mouth aside, forming a dimple on his cheek.*

M. masticatorii: *Chewing muscles that develop with the first glandular (mandibular) arc, start from the bones of the skull and attach to the lower jaw, ensuring its movement in the temporomandibular joint.*

M. masseter *begins its surface portion of the lower edge of the zygomatic bone and the front two-thirds of the zygomatic arch, muscle bundles walk down and back; deep part starts from the lower edge of the rear third of the zygomatic arch and the entire inner surface of the zygomatic arch, muscle bundles directed vertically downward and attached to the side surface of the coronary bone of the lower jaw; masticatory muscle raises the lower jaw, pressing with great force to the lower molars of the upper molar teeth.*

M. temporalis *starts from the outer surface of the parietal bone and below the bottom line of the temporal, temporal surface of the frontal bone, large bone and sphenoid wing scales of the temporal bone and the inner surface of the temporal bone and attached to the coronary process Lower jaw; Raises the lower jaw by pressing the lower front teeth to the upper, the back bundles of the muscle pull back the raised jaw.*

M. pterygoideus medialis *starts from the walls pterygoid fossa and pterygoid bone sphenoid bone and attached to the alar on the inner surface of the mandibular angle; Raises the lower jaw and pushes it forward.*

M. pterygoideus lateralis *has an upper head (caput superius), starting from the maxillary surface and infratemporal crest of the great wing of sphenoid bone and the lower head (caput inferius), starting from the outer surface of the lateral plate pterygoid process of sphenoid bone; two heads are attached combine muscle bundles are sent back and the side, attached to the pterygoid fossa and anterior surface of the neck of the mandible, joint capsule and articular disc of temporomandibular joint;*

5.1.1. Diaphragm

Diafragm- *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. Aperture - odd m 'lang ovo-tendon membrane that separates the chest cavity from the abdominal and has two surfaces, chest and belly.*

Diaphragm muscle bundles starting from the back surface of the sternum, VII - XII and lumbar vertebrae. Konverhuyuchy up from the periphery inward diaphragm muscle bundles pass into tendons Center presented tendon thin plate shaped trefoil, also called **mirror Helmont.**

There are lumbar, rib and thoracic parts of the diaphragm, depending on the place of origin.

-pars lumbales diaphragmatic *started right and left legs under the bodies I - IV and I - II lumbar vertebrae and two arcuate bonds - in the middle and lateral. Medium arcuate ligament - Galler's ligament connects the lateral surface of the body of the first lumbar vertebra and the apex of the transverse process of the second lumbar vertebra. The lateral arcuate ligament connects the top of the transverse process of the second lumbar vertebra with 12 ribs, it passes in front of the square muscle of the lumbar. Both legs of the diaphragm are lowered to the front of the longitudinal ligament of the spinal column.*

- pars costalis *starts from the inner surface of the lower six or seven ribs, broad muscular teeth, teeth that extend between the cross Muscle Stomach Muscle beams of this part of the diaphragm are directed to the tendon center.*

- pars sternalis *starts from the back surface of the sternum xiphoid process.*

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. Formation of motivation *f or targeted training activities at studying the anatomy of the muscles and fascia heads with the aim doctor's practice:*

– studing of muscle head anatomy encourages further study of these formations with a view to correcting defects of their professional development;

– studing of anatomy head muscles are the basis of the interpretation of normal and pathological the functions of these bodies focus expands search of correction in pathological processes;

– thorough knowledge of anatomy head muscles expand the choice of profession in medicine, surgery, otolaryngology, cosmetology.

5.2. Practical work of students *on the skeleton, wet preparations involves finding and differentiation of muscle and fascia of the head, the characteristics of each.*

Oral questioning is accompanied by a demonstration of anatomical structures on wet preparations, skeletons, as well as solving situational tasks and tests that maximally brings students closer to a specific clinical situation. Responses are discussed and students and teachers.

5.3. A standardized final control of knowledge.

We estimate the current success of each student during classes . Estimates are announced and age group puts them together in a roll of the success of attendance of students and their teacher certifying signature.

Students are informed about the topic of the next classes and instructional techniques concerning preparation for it.

Questions for controlling the entry level of students' knowledge

1. What are the basic principles of starting and fixing facial muscles?
2. To which groups are divided bones of the skull?
3. What are the basic principles of starting and fixing chewing muscles?
4. What kind of formation on the lower jaw is a place of attachment chewing muscle?
5. What kind of education on the lower jaw is the attachment site temporal muscle?
6. What formations on the lower jaw are attachment points winged muscles?
7. What is the muscle of the face that covers the eyelids?
8. What muscle of the face closes the mouth, compresses the lips?

Control questions and tasks to check the end-level preparation of students

1. List and demonstrate the muscles of the head?
2. What muscles make up a group of facial muscles? What are the functions for them?
shared?
3. List and demonstrate the muscles of the skull's vault. The functional meaning of the aponeurotic helmet.
4. Name the muscle groups of the face. By what principle they are divided to groups?
5.Name and demonstrate the muscles surrounding the eye slit?
Determine the functions of the respiratory tract systems. Name the structures that perform them.

6. Function of which the muscle leads to the outflow of tears from eye?
7. What facial muscles are rudimentary in humans?
8. What muscle of the face is a functional antagonist of the front abdominal cranial muscle?
9. What facial muscles raise the upper lip and the angle of the mouth?
10. What muscles of the face lower the lower lip and the angle of the mouth do you know ?
11. Describe the beginning and attachment of the muscles that shrink the skin forehead and collect it in wrinkles.
12. Describe and demonstrate the facial muscles that stretch the corners of the mouth and form a smile.
13. To name and demonstrate the muscles involved in the act sucking off babies.
14. Through which the muscle passes the derivative duct of the parotid salivary gland?
15. To call parts of the circular muscle of the mouth. What muscles are faces counteracts the colic muscle of the mouth?
16. List chewing muscles. What function is common to chewing muscles?
17. For which chewing muscle there is an additional function over jaw forward?
18. For which chewing muscle there is an additional function moving the raised jaw forward?
19. For which chewing muscles the side function is an additional function movements of the lower jaw?
20. To name and demonstrate the parotid fascia. Describe how does she cover the parotid salivary gland?
21. Describe the attachment and functional value of the buccal-pharyngeal fascia.
22. Describe the features of the structure and attachment of the temporal fascia, its functional value.
23. What muscle of the face extends the nostrils do ou know ? What parts does it have?

TEST TASKS "KROK-1"

1. A 30-year-old man appealed to a dentist complaining of a disorder chewing, he has pain in moving the jaw back. The doctor has established inflammation of one of the masticatory muscles. What is this muscle?
A. Thoracic muscle (front fibers).
B. The temporal muscle (the back fibers).
C. Medial wry-like muscle.
D. Side wing-like muscle.
E. Chewing muscle.

2. During the accident, the driver received numerous injuries to the head, among which was a breakthrough cripple arc. The function of a muscle that attaches to cuckoo arc will be broken?
A. M. masseter.
B.M orbicularis oris.
C.M. buccinator.
D. M.procerus.
E. M. rysorius.
3. In the patient - neuritis of the facial nerve. The sharp crack on the right is noticeable
more than left. The function of the mimic muscle is disturbed.
A. M. zygomaticus major.
B. M. corrugator supercilii.
C.M. procerus.
D.M. occipitofrontalis (venter frontalis).
E.M. orbicularis oculi.
4. In a patient of 60 years old, a wound of a cheek was cut. Corrosion duct damaged parotid gland. What muscle penetrates this duct?
A.M. buccinator.
B. M. rysorius .
C. M.orbicularis oris.
D. M. masseter.
E. M. levator anguliis.
5. In a patient, 30 years old - neuritis of the trigeminal nerve. He can not lift lowered lower jaw What muscles do not perform the function?
A. Mimic muscles.
B. Upperear muscle.
C. Subcutaneous muscles.
D. Chewing muscles.
E. Skeletal muscles of the tongue.
6. A patient, 25 years old, was injured temno-mandibular joint .What muscle is attached to the articular disk?
A.M. pterygoideus lateralis.
B. M. pterygoideus medialis.
C.M. masseter
D. M. temporalis.
E. M. buccinator.
7. In the patient - a cut wound of the person in the area of the wing - mandibular a seam coated with a fascia and an admixture with it. What is this fascia?
A. Fascia parotidea.
B. Fascia masseterica.
C. Fascia temporalis (lamina superficialis).
D. Fascia temporalis (lamina profunda).
E. Fascia buccopharingea.
8. In a patient after a person's injury, one of the facial branches is damaged the nerve The patient can not lift his eyebrows, wide open his eyes. Which

muscle lost its function?
A. M. occipitofrontalis (venter frontalis).
B.M. orbicularis oculi (pars palpebralis).
C.M. orbicularis oculi (pars orbitalis).
D.M. zygomaticus major.
E. M. procerus.
9. As a result of injury to a patient in the area of the coronary appendix of the lower one jaw there was a difficulty in movements in the temporo-mandibular joint. Which muscle attaches to the coronary process and does not perform function?
A.M. temporalis.
B.M. masseter.
C.M. pterygoideus lateralis.
D.M. pterygoideus medialis.
E. M. levator anguliis.
10. After head injury, the patient can not lower the jaw forward. What muscle is damaged?
A. M. zygomaticus major.
B. M. buccinator.
C.M. mylohyoideus.
D. M. masseter

Answers

1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
B	*A*	*E*	*A*	*D*	*A*	*E*	*A*	*A*	*A*