


ОҢТҮСТІК ҚАЗАҚСТАН <b>MEDISINA</b> <b>AKADEMIASY</b> «Оңтүстік Қазақстан медицина академиясы» АҚ		 SOUTH KAZAKHSTAN <b>MEDICAL</b> <b>ACADEMY</b> АО «Южно-Казахстанская медицинская академия»
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## METHODICAL RECOMMENDATIONS FOR PRACTICAL LESSONS

**Discipline:** «The musculoskeletal system and skin are normal»

**Discipline code:** ODAKN 2211


**Name of EP:** 6B10117 - «Dentistry»

**Number of hours/credits:** 60 hours/2 credits

**Year and term of the study:** Year –II, term – III

**Practical lessons:** 16 hours

Shymkent, 2023

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### Lesson №1

**1. Theme: International anatomical nomenclature. The concept of axes and planes. General overview of the skeleton. The structure of the bones of the body: vertebrae, sternum, ribs.**

**2. Aim:** To study the basic anatomical terms, axes, planes, features the structure of the skeleton and its individual bones - vertebrae, sternum, ribs.

**3. Learning objectives:** To teach students to find, name and show on the preparations the features of the structure of individual vertebrae, sternum and ribs.

**4. The main questions of the theme:**

1. Basic anatomical terms.
2. Anatomical planes and axes.
3. An overview of the skeleton.
4. Structure of the spinal column, its departments, functional purpose.
5. Specific features of the structure of the spine, in connection with the vertical position.
6. Thorax, constitutional features of chest's shape.
7. Anatomical structure of the chest.

**5. Methods of learning and teaching:**

Work in small groups with anatomical preparations, with a skeleton, tablets, posters. Work on the interactive anatomical table "Pirogov".

**6. Assessment Methods:**

An oral survey demonstrating the anatomical structures on the skeleton, posters, tablets, the Pirogov interactive anatomical table, the solution of test tasks and situational tasks. ». Cases in Platonus. Vebinars by means of Webex/Zoom/WhatsApp. Videos in Youtube.

**7. Bibliography:**

**In english:**

**main:**

1. Atlas of Human Anatomy: Netter F.N.; Saunders/Elsevier, 2014.
2. Gray's Anatomy for Students. Drake R.L., Vogl A. W., Mitchell A.W.M.; Churchill Livingstone/Elsevier 2014.

**supplementary:**

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2. Tenth Edition. D.Chaurasia's Human Anatomy. Regional and Applied, Dissection and Clinical. Fourth Edition, 2004.
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- 5.Республиканская межвузовская электронная библиотека <http://rmebrk.kz/>
- 6.Консультант студента <http://www.studmedlib.ru/>
- 7.Ашық кітапхана [https:// kitap.kz/](https://kitap.kz/)

**8. Control (questions, tests, tasks):**

**Questions:**

1. To name the basic Latin anatomical terms
2. To name the axis and the plane of the section of the human body
3. Structure of the spinal column, its departments
4. Common properties of the vertebrae
5. The structure of a typical vertebra
6. Features of the structure of cervical, thoracic vertebrae
7. Distinctive features of I, II, VI, VII cervical vertebrae
8. Distinctive features of I, X, XI, XII thoracic vertebrae
9. Features of the structure of lumbar vertebrae
10. Structure of the sternum, parts.

11. Structure of the rib, species.
12. Anatomy of the sacral vertebrae.

**Tests:**

1. Plane parallel to the forehead:
  - A) Horizontal
  - C) Frontal +
  - C) Sagittal
  - D) Vertical
  - E) Crossover
2. The second cervical vertebra differs from the other:
  - A) The presence of a tooth-shaped process +
  - B) The presence of a long spinous process
  - C) Absence of body
  - D) Lack of a spinous process
  - E) The presence of costal cavities
3. The thoracic vertebra differs from the others:
  - A) The presence of a tooth-shaped process
  - B) The presence of a long spinous process
  - C) Absence of body
  - D) Lack of a spinous process
  - E) The presence of costal cavities +
4. Components of the sternum:
  - A) Handle +
  - B) Scales
  - C) Sculiform process
  - D) Neck
  - F) Top
5. The xiphoid process has:
  - A) Shoulder bone
  - B) Shoulder
  - C) Pelvic bone
  - D) Sternum +
  - E) Clavicle
6. Rudimentary vertebrae:
  - A) Neck
  - B) Thoracic
  - C) Lumbar
  - D) Sacral
  - E) Coccygeal +
7. The thorax is formed by:
  - A) Breast +
  - B) pelvic bones
  - C) Patella
  - D) Lumbar vertebrae
  - E) Cervical vertebra
8. Plane, passing along the middle of the body and dividing it into two symmetrical halves:
  - A) frontal
  - B) horizontal
  - C) medial

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D) median +

E) Lateral

9. Number of cervical vertebrae:

A) 4

B) 5

C) 7+

D) 8

E) 12

10. Number of thoracic vertebrae:

A) 4

B) 5

C) 7

D) 8

E) 12+

11. Number of lumbar vertebrae:

A) 4

B) 5+

C) 7

D) 8

E) 12

12. Number of sacral vertebrae:

A) 4

B) 5+

C) 7

D) 8

E) 12

13. Vertebrae with holes in the transverse processes:

A) cervical +

B) thoracic

C) Lumbar

D) sacral

E) Coccygeal

14. Vertebrae with rib fossae:

A) cervical

B) thoracic +

C) Lumbar

D) sacral

E) Coccygeal

15. Coronary tubercle of the sixth cervical vertebra is located

A) on the transverse process +

B) on the spinous process

C) on the upper articular process

D) on the vertebral body

E) on the lower articular process

16. The presence of a hole in the transverse processes is characteristic of

A) cervical vertebrae +

B) thoracic vertebrae

C) lumbar vertebrae

D) sacral vertebrae

E) the coccygeal vertebrae

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17. The tooth fossa has
- A) 7 cervical vertebra
  - B) 6 cervical vertebra
  - C) 2 cervical vertebra
  - D) 1 cervical vertebra +
  - E) 1 thoracic vertebra
18. Anatomical formation of the sacrum:
- A) eared surfaces +
  - B) the upper part
  - C) neck
  - D) Front end
  - E) spinous process
19. Sternum parts:
- A) the base
  - B) apex
  - C) handle +
  - D) mastoid process
  - E) Spine
20. To false ribs are:
- A) The 1st rib
  - B) VIIth rib
  - C) VIII-th rib +
  - D) XII-th rib
  - E) XI th rib
21. Components of I cervical vertebra:
- A) front arc +
  - B) tooth
  - C) lower articular process
  - D) body
  - E) spinous process
22. The holes of the transverse process:
- A) in the thoracic vertebrae
  - B) in the cervical vertebrae +
  - C) in the lumbar vertebrae
  - D) in the sacral vertebrae
  - E) in the coccygeal vertebrae
23. Characteristic features of the thoracic vertebrae:
- A) the presence of a hole in the transverse processes
  - B) presence of ribs on the bodies of the vertebrae +
  - C) the presence of tubercles on the transverse processes
  - D) the presence of mastoid processes
  - E) presence of anterior and posterior tubercles on transverse processes
24. Anatomic structures of the 1st rib:
- A) sutures of the subclavian artery +
  - B) ridge head comb
  - C) groove of the rib
  - D) trapezoidal line
  - E) cervical rib
25. Spines of vertebrae:
- A) beak-shaped process

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- B) spinous process +
  - C) coronoid process
  - D) jugular process
  - E) styloid process
26. Components of the vertebrae:
- A) arc +
  - B) Wings
  - C) tooth
  - D) styloid process
  - E) the head
27. Anatomical formations characteristic of cervical vertebrae:
- A) hole in the transverse processes +
  - B) long spinous process
  - C) anterior and posterior dimples on transverse processes
  - D) mastoid process
  - E) costal fossae
28. Anatomical formations characteristic of the thoracic (II - IX) vertebrae
- A) upper and lower costal fossa +
  - B) Transverse-costal processes
  - C) styloid process
  - D) mastoid processes
  - E) Sleepy tubercle
29. Which vertebrae on the posterolateral surfaces of the body have simultaneously full costal fossae and half-planes:
- A) I thoracic vertebra +
  - B) Xth thoracic vertebra
  - C) XIth thoracic vertebra
  - D) XIIth thoracic vertebra
  - E) VIII thoracic vertebra
30. In the sixth cervical vertebra the somnolent tubercle is located:
- A) on the transverse process +
  - B) on the spinous process
  - C) on the upper articular process
  - D) on the vertebral body
  - E) on the lower articular process
31. Location of Cape Vertebral column:
- A) at the level of the connection of the IV-th and V-th lumbar vertebrae
  - B) at the level of connection of the V-th lumbar vertebra with sacrum +
  - C) at the level of the body of the V-th lumbar vertebra
  - D) at the level of the I-st sacral vertebra
  - E) at the level of the joint of the XII th thoracic and I th lumbar vertebra
32. Location of the sternum angle:
- A) at the junction of the handle with the sternum +
  - B) at the junction of the sternum body with the xiphoid process
  - C) at the level of the jugular notch of the sternum
  - D) at the mid-body level of the sternum
  - E) at the level of the xiphoid process
33. Edge parts:
- A) the body +
  - B) legs

C) tubercle

D) the arc

E) tail

34. Ribs that do not have a scallop on the heads:

A) The 1st rib +

B) X-rib

C) IX-rib

D) II-rib

E) Vth rib

35. Position on the first rib of the suture of the subclavian artery;

A) behind the tubercle of the anterior scalene muscle +

B) in front of the tubercle of the anterior scalene muscle

C) on the tubercle of the anterior scalene muscle

D) in front of the rib tubercle

E) on the bottom surface of the edge

#### Tasks:

**№1.** As a result of street trauma, the patient had a cardiac arrest

How can you provide emergency care and which parts of the skeleton are affected?

**Answer:** It is necessary to do heart massage by rhythmic movements in the area of the body of the sternum.

**№2.** As a result of street trauma, the patient had arterial bleeding in the cervical region from the branches of the carotid artery. How can you stop bleeding?

**Answer:** Bleeding can be stopped by pressing the blood vessel to the sleepy tubercle of the sixth cervical vertebra.

**№3.** The vertebrae have a short bifurcated spinous process, and there are small openings on the transverse processes. Determine the vertebra?

**Answer:** typical cervical vertebra

#### Lesson №2

**1. Theme:** The structure of the bones of the shoulder girdle and the free part of the upper limb. The structure of the bones of the pelvic girdle and the free part of the lower limb.

**2. Aim:** To study the structure of the bones of the shoulder girdle, shoulder, forearm and hand. To study the structure of the bones of the pelvic girdle, hip, shin and foot.

**3. Learning objectives:** To teach students to show and name in Latin the individual parts of the shoulder girdle and free upper limb. Differentiate the right, left tubular bones of the upper limb. Show epiphyses, metaphyses, apophyses, diaphysis. To teach students to find, name and show parts and the main details of their structure, and also learn to distinguish the bones of the right lower limb from the left on the preparations of the lower limb.

#### 4. Main questions of the theme:

1. What are the parts of the skeleton of the bones of the upper limb?
2. List the bones of the free upper limb.
3. List the bones of the upper limb belt.
4. Determine the features of the structure of the clavicle, its belonging to the right or left side.
5. The structure of the scapula, determine the difference of the right scapula from the left.
6. The structure of the humerus, ulna, radius and bones of the hand.
7. Name the bones that make up the pelvic bone.
8. Name the parts of the ilium, their parts.
9. Name the parts of the pubic bone, their parts.

10. Name the parts of the ischium, their parts.
11. The structure of the femur, bones of the lower leg.
12. Structure of the skeleton of the foot.

### 5. Methods of learning and teaching:

Work in small groups with anatomical preparations, with a skeleton, tablets, posters. Work on the interactive anatomical table "Pirogov". Cases in Platonus. Vebinars by means of Webex/Zoom/WhatsApp. Videos in Youtube.

### 6. Assesment Methods:

An oral survey demonstrating the anatomical structures on the skeleton, posters, tablets, the Pirogov interactive anatomical table, the solution of test tasks and situational tasks.

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### 8. Control (questions, tests, tasks):

#### Questions:

1. The structure of the scapula, its location relative to the skeleton of the trunk.
2. The structure of the clavicle, its skeletopia.
3. To name all the formations of the humerus, elbow, and radius in Latin
4. Differentiate the right from the left tubular bones of the upper limbs
5. Latin name of the bones of the hand.
6. Structure of 3 departments: carpus, metacarpus, phalanx of fingers.
7. Structure of the hip bone as a whole.
8. Functional significance of pelvic bones.
9. Name the parts of the femur.
10. Describe the tibial and fibular bones.
11. Name the parts of the foot and indicate which bones form the proximal and distal rows of the tarsum.
12. Describe the anatomical features of the foot bones.

#### Tests:

1. Bone, which has two necks - anatomical and surgical:
  - A) Shoulder bone +
  - B) Scapula
  - C) Pelvic bone
  - D) Breast
  - E) The ulna
2. Bone, which refers to the flat bones of the upper limb belt:



- A) Scapula +
  - B) The occipital bone,
  - C) The dark bone,
  - D) Pelvic bone
  - E) Upper jaw
3. The articular cavity, *cavitas glenoidalis*, is located on:
- A) The humerus
  - B) Clavicle
  - C) Scapula +
  - D) The pelvic bone
  - E) Breast
4. Processes of scapula:
- A) The styloid process
  - B) Transverse process
  - C) Acromion +
  - D) Venous process
  - E) Elbow process
5. Forearm bones:
- A) Shoulder bone
  - C) Elbow bone +
  - C) Pelvic bone
  - D) Semilunar bone
  - E) Clavicle
6. The name of the middle part of the body of the tubular bones:
- A) diaphysis +
  - B) epiphysis
  - C) metaphysis
  - D) apophysis
  - E) diploe
7. The name of the part of the bone located between the body and the ends of the tubular bones:
- A) diaphysis
  - B) epiphysis
  - C) metaphysis +
  - D) apophysis
  - E) diploe
8. The name of the ends of the tubular bones:
- A) diaphysis
  - B) the epiphysis +
  - C) metaphysis
  - D) apophysis
  - E) diploe
9. What kind of bone on structure of the scapula:
- A) tubular
  - B) abnormal
  - C) flat +
  - D) mixed
  - E) airborne
10. What kind of bone by structure of the humerus?
- A) tubular +
  - B) Spongy

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- C) mixed  
 D) airborne  
 E) flat
11. Bone of the shoulder girdle:
- A) sternum  
 B) scapula +  
 C) Shoulder  
 D) ulna  
 E) beam
12. Location of the articular cavity of the scapula:
- A) upper corner  
 B) bottom corner  
 C) lateral angle +  
 D) acromion  
 E) beak-shaped process
13. Location of scapular awn:
- A) upper corner  
 B) bottom corner  
 C) lateral angle  
 D) the edge surface  
 E) dorsal surface +
14. Designate a bone that has an acromion and a coracoid process:
- A) clavicle  
 B) sternum  
 C) scapula +  
 D) Shoulder  
 E) ulna
15. Which bone has two cervical spines?
- A) shoulder +  
 B) femur  
 C) ulna  
 D) tibial  
 E) beam
16. Bone, which has on the distal epiphysis 3 pits - ulnar, radial and coronal:
- A) scapula  
 B) Shoulder +  
 C) ulna  
 D) Radix  
 E) clavicle
17. hand departments:
- A) carpus +  
 B) tarsus  
 C) plus  
 D) ossa pedis  
 E) apophysis
18. Scapula`s cutting is
- A) at the medial margin  
 B) at the top edge +  
 C) on the acromion  
 D) on the lateral margin

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E) on the shoulder blade

19. Anatomic formation of the scapula:

- A) articular cavity +
- B) spinous process
- C) large tubercle
- D) acetabulum
- E) beak-shaped process

20. Anatomical formations on the posterior surface of the humerus:

- A) interthybaric sulcus
- B) deltoid tuberosity
- C) large tubercle
- D) a furrow of a radial nerve +
- E) small hillock

21. Anatomic formations of the ulna:

- A) rib tenderloin
- B) large tubercle
- C) block-shaped notch +
- D) small tubercle
- E) jugular notch

22. Bones of distal wrist:

- A) triangular
- B) semilunar
- C) ramming
- D) bone-trapezium +
- E) pea

23. Bones having a coronoid process:

- A) temporal bone
- B) humerus
- C) upper jaw
- D) the jugal jaw
- E) the ulna +

24. At the proximal end of the humerus there are:

- A) Radial fossa
- B) head +
- C) condyle
- D) styloid process
- E) humerus block

25. Anatomic formations of the humerus:

- A) tuberosity
- B) intercampis fissure +
- C) coronoid process
- D) fossa of the radial process
- E) fossa


26. At the proximal end of the radius there are:

- A) elbow tenderloin
- B) head +
- C) small tubercle
- D) large tubercle
- E) styloid process

27. Bones of the upper limb belt:

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- A) 1st edge
  - B) clavicle +
  - C) humerus
  - D) edges
  - E) sternum
28. Arrangement of articular cavity for articulation with humerus:
- A) on the acromion
  - B) at the top of the scapula
  - C) on the coracoid process
  - D) at the lateral angle of the scapula +
  - E) on the spinous process
29. Arrangement on the collarbone of the conical tubercle and trapezoidal line:
- A) on the upper surface
  - B) on the front surface
  - C) on the bottom surface +
  - D) on the back surface
  - E) on the sternal end of the clavicle
30. Anatomic formations of the distal end of the humerus:
- A) coronary fossa +
  - B) small tubercle
  - C) large tubercle
  - D) interthygeal groove
  - E) styloid process
31. Anatomic formations of the distal end of the radius:
- A) elbow process
  - B) the head
  - C) neck
  - D) styloid process +
  - E) coronoid process
32. Bones of the proximal wrist:
- A) capitate
  - B) talus bone
  - C) Hook-shaped bone
  - D) Cuboid bone
  - E) bone-trapezium +
33. The styloid process has:
- A) humerus
  - B) the ulna +
  - C) Thigh
  - D) stop
  - E) blade
34. What does not apply to the scapula
- A) beak-shaped process
  - B) superarticular tubercle
  - C) subarticular tubercle
  - D) articular cavity
  - E) lateral surface +
35. Anatomic formations of the proximal end of the ulna:
- A) head
  - B) elbow process +

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- C) block-like process  
 D) awned  
 E) furrow

#### Tasks:

**№1.** As a result of a sharp fall, the victim suffered a fracture of one of the bones of the forearm. At the same time, pathological mobility is noted on the anterior - lateral margin of the forearm. Specify the fracture of what bone is observed in the affected person.

**Answer:** The patient suffered a fracture of the radius.

**№2.** Mother brought a seven-year-old daughter for examining to a surgeon. The reason for her treatment to the doctor was that the daughter's extension of the forearm in the elbow joint was more than 180 degrees. However, the surgeon did not establish the fact of pathology and reassured the agitated mother. Why the extension in the elbow joint more than 180 degrees in the girl's doctor did not consider pathology?

**Answer:** In children and some women, the forearm can be re-braided at the elbow joint due to the weakness of the ligament apparatus and the small size of the ulnar process.

**№3.** On the radiogram of the healthy foot of a 7-year-old child, the doctor saw multiple fragments in the calcaneal tuberosity of calcaneus.

What is the reason?

**Answer:** In a child of 7-9 years, the calcaneal tuberosity of the calcaneus develops from several points of ossification, which merge with the body to 12-15 years.

**№4.** To determine the age of the child, the doctor was given a roentgenogram of the hip, on which there was only one point of ossification in the region of the femoral head. How old was the child?

**Answer:** The child was 1 year old.

#### Lesson №3

**1. Theme: The structure of the bones of the brain and facial skull.**

**2. Aim:** To study the structure of the bones of the cerebral cranium. To study the structure of the bones of the facial skull.


**3. Learning objectives:** To teach students to find, name, show on the skull and on separate preparations of the bone of the brain skull. Distinguish among the pare bones of the right and left bones. Teach students to find, name, show on the skull and on individual preparations the bones of the facial skull. Distinguish among paired bones right and left bones.

#### **4. Main questions of the theme:**

1. Name the departments of the skull.
2. Define the function of the skull.
3. Draw a boundary between the roof and the base of the brain skull.
4. Name the bones of Latin for the brain's skull.
5. An overview of the skull, dividing it into the brain and facial area.
6. Show the border of the brain and facial skull.
7. List and show the bones of the facial skull.

#### **5. Methods of learning and teaching:**

Work in small groups with anatomical preparations, with a skeleton, tablets, posters. Work on the interactive anatomical table "Pirogov". Cases in Platonus. Vebinars by means of Webex/Zoom/WhatsApp. Videos in Youtube.

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## 6. Assessment Methods:

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## 7. Bibliography:

### In english:

#### main:

1. Atlas of Human Anatomy: Netter F.N.; Saunders/Elsevier, 2014.
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## 8. Control (questions, tests, tasks):

### Questions:

1. General overview of the skull, division into the brain and facial sections
2. Describe the structure of the scales of the frontal bone
3. Describe the structure of the orbital part of the frontal bone
4. Describe the structure of the nose of the frontal bone
5. Describe the structure of the outer and inner surfaces of the parietal bone
6. Name the parts of the occipital bone and their structure
7. Show the position of the sphenoid bone in the skull and describe the structure
8. Determine the position of the temporal bone in the skull
9. List the bones with which the temporal bone borders
10. Name the channels of the temporal bone.
11. Describe the structure of the latticed bone.
12. List and show the bones of the facial skull.
13. Name and show the surface of the body of the upper jaw.
14. List the processes of the body of the upper jaw.
15. List nasal conchas, which of them is an independent bone?
16. Name the processes of the palatine bone.
17. What are the surfaces of the perpendicular plate of the palatine bone, which is the medial one?
18. What processes terminates the perpendicular plate of the palatine bone?
19. List and show the processes, and the holes of the zygomatic bone.
20. List and show the parts of the lower jaw.
21. Name the processes of the lower jaw.
22. List the elevations of the lower jaw.
23. Which bones of the facial skull are pneumatic?

### Tests:

1. Bone of the cerebral cranium:
  - A) Frontal bone +
  - C) Palatine bone
  - C) Lower jaw

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- D) Vomer
- E) Upper jaw
- 2. The rocky part has:
  - A) Frontal bone
  - C) The Darkbone
  - C) Temporal bone +
  - D) Occipital bone
  - E) The sphenoid bone
- 3. Bone of the cerebral cranium:
  - A) occipital +
  - B) lacrimal
  - C) nasal
  - D) the upper jaw
  - E) lower jaw
- 4. The canal of the temporal bone, through which passes the internal carotid artery:
  - A) muscular-trumpet
  - B) the facial channel
  - C) sleeping channel +
  - D) Cochlear duct
  - E) Drum canaliculus
- 5. The canal of the temporal bone through which the facial nerve passes:
  - A) canalis musculotubarius
  - B) canalis facialis +
  - C) canalis caroticus
  - D) canaliculus cochlea
  - E) canaliculus tympani
- 6. Bone forming with the head of the lower jaw joint:
  - A) zygomatic
  - B) temporal +
  - C) upper jaw
  - D) occipital
  - E) parietal
- 7. Which skull bone has a perforated plate?
  - A) frontal
  - B) lacrimal
  - C) wedge shaped
  - D) lattice +
  - E) nasal
- 8. The bone in which the largest opening of the skull is located:
  - A) frontal
  - B) parietal
  - C) occipital +
  - D) temporal
  - E) zygomatic
- 9. Function of the cerebral skull:
  - A) covers the beginning of the respiratory system
  - B) + receptacle for the brain
  - C) covers the beginning of the digestive system
  - D) receptacle for the organ of vision
  - E) receptacle for sensory organs

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10. Name the unpaired bone of the skull:

- A) frontal +
- B) the upper jaw
- C) palatal
- D) temporal
- E) parietal

11. Skull bones, in the composition of which there is scales:

- A) sphenoid bone
- B) solvable
- C) frontal bone +
- D) scapula
- E) parietal bone

12. Anatomical structures of the frontal bone:

- A) glabella +
- B) the visual channel
- C) round hole
- D) infraorbital margin
- E) oblique line

13. Belonging to the sphenoid bone:

- A) blind hole
- B) round hole +
- C) Oval hole
- D) the facial channel
- E) jugular opening

14. The sublingual canal is located:

- A) in the occipital bone +
- B) in the lower jaw
- C) in the upper jaw
- D) in the sphenoid bone
- E) in the palatine bone

15. Components of the trellis:

- A) trellis notch
- B) the perpendicular plate +
- C) lower nasal sink
- D) palatine bone
- E) horizontal plate

16. Anatomical formations of the temporal bone:

- A) transverse process
- B) zygomatic process +
- C) sphenoid process
- D) beak-shaped process
- E) frontal process


17. The stylus-like opening ends:

- A) mastoid canaliculus
- B) a tubule canaliculus
- C) face channel +
- D) drowsy tubules
- E) Musculoskeletal channel


18. Channels of the temporal bone:

- A) condylar canal



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- B) facial channel +
- C) the visual channel
- D) leading channel
- E) lateral channel
- 19. The cranial canal is located:
  - A) in the temporal bone
  - B) in the upper jaw
  - C) in the sphenoid bone +
  - D) in the palatine bone
  - E) in the lower jaw
- 20. Carry a furrow of the upper sagittal sinus:
  - A) temporal bone
  - B) frontal bone +
  - C) affinity
  - D) sphenoid bone
  - E) trellised bone
- 21. Bearing on itself a furrow of the upper stony sine:
  - A) sphenoid bone
  - B) occipital bone
  - C) frontal bone
  - D) temporal bone +
  - E) trellised bone
- 22. Anatomic formations of the occipital scales:
  - A) arcuate elevation
  - B) transverse sinus groove +
  - C) groove of the inferior stony sine
  - D) sagittal sulcus groove
  - E) jugular notch
- 23. On the scaly part of the temporal bone there are:
  - A) mandibular fossa +
  - B) coronoid process
  - C) mastoid process
  - D) Sleepy channel
  - E) stylo-appendicum
- 24. Bone of the cerebral cranium:
  - A) frontal +
  - B) lacrimal
  - C) palatal
  - D) Opener
  - E) nasal
- 25. Parts of the frontal bone:
  - A) Scales +
  - B) body
  - C) the teardrop
  - D) the lateral part
  - E) temporal part

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### Tasks:

**№1.** In an automobile accident, the injured person suffered an injury to the side of the head. At the same time, the scaly part of the temporal bone was separated from the pyramid. Which canal of the temporal bone will suffer in these conditions?

**Answer:** Musculoskeletal canal.

**№2.** During surgery, the surgeon manipulates the lower surface pyramids of the temporal bone anterior to the jugular fossa. The destruction of which canal is possible with careless actions of the operator?

**Answer:** If careless actions of the operator may destroy carotid canal followed by massive arterial bleeding.

**№3.** A one-year-old child on an X-ray photograph shows a pronounced crevice along the median line of the frontal part of the skull. What is the reason?

**Answer:** The frontal bone develops from two halves, which, by the 2nd year, grow together, forming the so-called metopic suture.

**№4.** In an automobile accident, the victim suffered a nose injury. Thus there was a fracture of the septum of the nose. What bones suffered under these conditions?

**Answer:** The latticed bone and the opener.

**№5.** As a result of the inflammatory process, an abscess appeared in the area of the orbital wall of the orbit. The attending physician expects the spread of inflammation to the frontal region of the palatine fossa. Through which hole the spread of the inflammatory process from the orbit to the wing-palatine fossa is possible?

**Answer:** The spread of inflammation from the orbit into the foveal-palatine fossa is possible through the lower orbital fissure.

### Lesson №4

**1. Theme: Topography of the skull. Skull as a whole. Age characteristics.**

**2. Aim:** To study the topography of the brain and facial skull, their boundaries.

**3. Learning objectives:** Teach students to distinguish between skull bones to describe their structure, to call it Latin.

**4. Main questions of the theme:**

1. Determine the boundary between the vault and the base of the skull.
2. The base of the skull, its surface.
3. The boundaries of the cranial fossa, the meaning of the holes, through which the cranial fossa communicate with other cavities.
4. Describe the relief of the outer base of the skull.
5. Name the bony walls of the nasal cavity, orbit, mouth cavity, pterygoid fossa, as well as bone channels, holes that communicate each cavity with another.

**5. Methods of learning and teaching:**

Work in small groups with anatomical preparations, with a skeleton, tablets, posters. Work on the interactive anatomical table "Pirogov". Cases in Platonus. Vebinars by means of Webex/Zoom/WhatsApp. Videos in Youtube.

**6. Assesement Methods:**

An oral survey demonstrating the anatomical structures on the skeleton, posters, tablets, the Pirogov interactive anatomical table, the solution of test tasks and situational tasks.

**7. Bibliography:**

**In english:**

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- 7.Ашық кітапхана [https:// kitap.kz/](https://kitap.kz/)


**8. Control (questions, tests, tasks):**

**Questions:**

1. Age and gender individual features of the skull. Variations and abnormalities of the bones of the skull.
2. Skin of the facial skull. Glaznitsa and nasal cavity.
3. Tallow bone, its parts, canals and their name.
4. Wedged bone, its parts, holes and their development.
5. Krynonebnaya fossa, its walls, holes and their values.
6. Onkonosovye sinuses, their meanings.
7. Internal base of the skull, holes, their meaning.
8. The outer base of the skull, holes, their values.
9. Differences in the structure of the skull, shape. Cranial indices in accordance with the shape of the skull.
10. Features of the skull structure of the newborn.

**Tests:**

1. Front opening of the nasal cavity:
  - A) Pear-shaped aperture +
  - B) Hoans
  - C) Upper orbital crack
  - D) Lower orbital gap
  - E) The visual channel
2. Between the upper and lateral walls of the orbit is:
  - A) Pear-shaped aperture
  - B) Hoans
  - C) Upper orbital aperture +
  - D) Lower orbital gap
  - E) The visual channel
3. Between the lower and lateral walls of the orbit is:
  - A) Pear-shaped aperture
  - B) Hoans
  - C) Upper orbital crack
  - D) Lower orbital gap +
  - E) The visual channel
4. The middle cranial fossa can not be opened:
  - A) blind hole +
  - B) Oval hole
  - C) upper orbital fissure
  - D) a jugular aperture

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- E) A spinning hole
5. The nasolacrimal canal opens in:
- A) upper nasal passage
  - B) the middle nasal passage
  - C) oral cavity
  - D) lower nasal passage +
  - E) maxillary sinus
6. The aperture of the sphenoid sinus opens in:
- A) anterior cranial fossa
  - B) the middle nasal passage
  - C) upper nasal passage +
  - D) middle cranial fossa
  - E) lower nasal passage
7. In the formation of the khohans participate:
- A) opener +
  - B) occipital bone
  - C) lacrimal bone
  - D) the upper jaw
  - E) trellised bone
8. In the pterygoid fossa:
- A) blind hole
  - B) Oval hole
  - C) upper orbital fissure
  - D) the lower orbital gap +
  - E) the facial channel
9. Internal auditory opening is located:
- A) on the front surface of the pyramid
  - B) on the back of the pyramid +
  - C) on the lower surface of the pyramid
  - D) on the upper surface of the pyramid
  - E) on the lateral surface of the pyramid
10. Separate the middle and posterior cranial fossa:
- A) front edge of the temporal bone pyramid
  - B) upper edge of the temporal bone pyramid +
  - C) posterior edge of the pyramid of the temporal bone
  - D) the tubercle of the Turkish saddle
  - E) the cock's comb
11. The school arch is formed by:
- A) frontal bone
  - B) sphenoid bone
  - C) temporal bone +
  - D) occipital bone
  - E) the upper jaw
12. Lambdoid suture is located:
- A) between the temporal and parietal bones
  - B) between the frontal and parietal bones
  - C) between parietal and occipital bone +
  - D) between the temporal and sphenoid bone
  - E) between the temporal and occipital bones
13. Holes of the large wing of the sphenoid bone:

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- A) a torn hole
  - B) the lower eye gap
  - C) nasolacrimal canal
  - D) awned hole +
  - E) the facial channel
14. Anatomical formations on the basilar part of the occipital bone:
- A) occipital condyle
  - B) fissure of the upper stony sine
  - C) sulcus groove
  - D) occipital protrusion
  - E) pharyngeal tubercle +
15. Anatomical formations of the occipital scales:
- A) arcuate elevation
  - B) transverse sinus groove +
  - C) groove of the inferior stony sine
  - D) sagittal sulcus groove
  - E) jugular notch
16. On the scaly part of the temporal bone are:
- A) mandibular fossa +
  - B) coronoid process
  - C) mastoid process
  - D) Sleepy channel
  - E) stylo-appendicum
17. Pterygoid fossa communicates with the middle cranial fossa through
- A) Oval hole
  - B) the upper orbital gap
  - C) lower orbital fissure
  - D) circular hole +
  - E) wedge-palatal opening
18. The eye socket opens:
- A) the facial channel
  - B) Oval hole
  - C) upper orbital gap +
  - D) a small hole
  - E) round hole
19. The border between the middle and posterior cranial fossa is:
- A) external occipital protrusion
  - B) Inner occipital protrusion
  - C) upper edge of pyramids of temporal bones +
  - D) small wedge-shaped wings
  - E) coronal suture
20. From the pterygo-palatine fossa into the nasal cavity leads:
- A) wedge-palatal opening +
  - B) a round hole
  - C) Oval hole
  - D) the lower orbital gap
  - E) pterygoid canal
21. The anterior wall of the pterygopalatine fovea forms:
- A) perpendicular plate of the palatine bone
  - B) the cutting comb

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- C) pterygiform process of sphenoid bone  
 D) upper jaw +  
 E) malar bone
22. The circular hole is located  
 A) on the frontal bone  
 B) on the sphenoid bone +  
 C) on the lattice  
 D) on the occipital bone  
 E) on the temporal bone
23. The skull is formed by:  
 A) scales of the temporal bone +  
 B) the lateral part  
 C) the nose  
 D) parietal mounds  
 E) lacrimal bone
24. Anatomical formations of the outer surface of the frontal scales:  
 A) temporal line +  
 B) frontal crest  
 C) trellis notch  
 D) Supraorbital scrapes  
 E) the cock's comb
25. Anatomical formations of the anterior surface of the temporal bone pyramid:  
 A) aperture of the musculoskeletal canal  
 B) the jugular fossa  
 C) stony dimple  
 D) arcuate elevation +  
 E) Intrinsic holes
26. Anatomical formations of the lower surface of the temporal bone pyramid:  
 A) subarcic fossa  
 B) Hole orifice  
 C) external opening of the carotid canal +  
 D) oval fossa  
 E) trigeminal impression
27. Anatomical formations of the mandibular branch:  
 A) chin bone  
 B) coronoid process  
 C) styloid process +  
 D) oblique line  
 E) Chewing tuberosity
28. Bones forming the anterior cranial fossa:  
 A) lacrimal bone  
 B) frontal bone +  
 C) parietal bone  
 D) Opener bone  
 E) occipital bone
29. Bones forming the middle cranial fossa:  
 A) frontal bone  
 B) occipital bone  
 C) sphenoid bone +  
 D) trellised bone

E) parietal bone

30. Bones forming the posterior cranial fossa:

A) upper jaw

B) the malar bone

C) sphenoid bone

D) occipital bone +

### Tasks:

**№1.** The jugular opening is located on the lower surface of the skull. Through it there are nerves and a large venous vessel. In what cavity of the skull will hemorrhage spread. If this venous vessel is destroyed in the area of the jugular opening?

**Answer:** Hemorrhage from the venous vessel will spread into the posterior cranial fossa.

**№2.** As a result of conjunctivitis, purulent discharge from the orbit began to enter the nasal cavity. Through which channel is the spread of the inflammatory process from the orbit to the nasal cavity and what bones are involved in the formation of this channel?

**Answer:** The spread of inflammation from the orbit to the nasal cavity goes through the nasolacrimal canal, in the formation of which the upper jaw and lacrimal bone participate.

### Lesson №5

**1. Theme: Connections of the bones of the head and trunk: structure and function.**

**2. Aim:** To study the connections of the bones of the head, trunk, and the connection of the vertebral column to the skull.

**3. Learning objectives:** To teach students to know the classification of joints of bones, structural elements of the joint, as well as an auxiliary apparatus, connections of the bones of the head, trunk.

### **4. Main questions of the theme:**

1. Classification of connections.
2. Types of continuous connections.
3. Discontinuous connections, examples.
4. Components of the joints.
5. Vertebral column, characteristic, meaning.
6. Thorax as a whole.
7. Joint of the bones of the skull.
8. Temporomandibular joint.

### **5. Methods of learning and teaching:**

Work in small groups with anatomical preparations, with a skeleton, tablets, posters. Work on the interactive anatomical table "Pirogov". Cases in Platonus. Webinars by means of Webex/Zoom/WhatsApp. Videos in Youtube.

### **6. Assessment Methods:**

An oral survey demonstrating the anatomical structures on the skeleton, posters, tablets, the Pirogov interactive anatomical table, the solution of test tasks and situational tasks.

### **7. Bibliography:**

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**8. Control (questions, tests, tasks):**


**Questions:**

1. Classification of joints of bones.
2. Types of continuous connections, examples.
3. Discontinuous connections, examples.
4. Components of the joints.
5. Classification of joints (in shape, in structure, in function).
6. Vertebral connections.
7. Connections of ribs with vertebral column and sternum.
8. Thorax as a whole.
9. Joints of the skull bones.
10. Temporomandibular joint.
11. Connecting the spinal column to the skull.
12. Breast-clavicular joint.

**Tests:**

1. Bends protruding backwards:
  - A) Cervical lordosis
  - B) Lumbar lordosis
  - C) Thoracic kyphosis +
  - D) Pubic symphysis
  - E) Scoliosis
2. Bends convex forward:
  - A) The sacral kyphosis
  - C) Lumbar lordosis +
  - C) Thoracic kyphosis
  - D) Pubic symphysis
  - E) Scoliosis
3. Lateral bending:
  - A) The sacral kyphosis
  - C) Lumbar lordosis
  - C) Thoracic kyphosis
  - D) Pubic symphysis
  - E) Scoliosis +
4. Type of connection, if there is a connective tissue in the gap between the bones:
  - A) synchondrosis
  - B) synostosis
  - C) syndesmosis +
  - D) diarthrosis
  - E) hemiarthrosis



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5. Type of connection, in which the bones are connected by means of a cartilaginous tissue:

- A) synchondrosis +
- B) syndesmosis
- C) synostosis
- D) diarrhea
- E) hemiarthrosis

6. Type of connection, in which the bones are connected through bone:

- A) synchondrosis
- B) syndesmosis
- C) synostosis +
- D) diarrhea
- E) hemiarthrosis

7. Name of joints anatomically isolated, but functionally interrelated:

- A) simple
- B) complex
- C) Integrated
- D) combined +
- E) half-joint

8. An articulation having more than two articular surfaces is called:

- A) simple
- B) complex +
- C) an integrated
- D) combined
- E) polustavom

9. Auxiliary joints are:

- A) articular surface
- B) articular disc +
- C) articular cavity
- D) joint capsule
- E) synovial fluid

10. The joint disc is available:

- A) in the knee joint
- B) in the ankle
- C) in the radiocarpal joint +
- D) in the humerus
- E) in the hip joint

11. With the help of yellow ligament:


- A) the body of the vertebrae
- B) transverse processes of the vertebrae
- C) spinous processes of the vertebrae
- D) arcs of vertebrae +
- E) articular processes of the vertebrae

12. The temporomandibular joint is

- A) combined joint +
- B) with a spherical joint
- C) cylindrical joint
- D) with a multiaxial joint
- E) flat joint

13. To multi-axial joints are:

- A) muscular joints

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- B) cylindrical joints
- C) spherical joints +
- D) block joints
- E) ellipsoidal joints
- 14. Uniaxial joints are:
  - A) Shoulder joint
  - B) the adrenoid joint +
  - C) wrist joint
  - D) hip joint
  - E) knee joint
- 15. Biaxial joints are:
  - A) the humerus
  - B) wrist joint +
  - C) hip joint
  - D) the adrenoid joint
  - E) Shoulder joint
- 16. Around the sagittal axis is produced:
  - A) reduction +
  - B) rotation
  - C) circular motions
  - D) bending
  - E) Extension
- 17. Around the front axle:
  - A) reduction
  - B) lateral displacement
  - C) lead
  - D) Extension +
  - E) rotation

#### **Tasks:**

**№1.** In the temporomandibular joint, several kinds of movement are possible: lowering and lifting the lower jaw, moving forward and returning back, shifting the lower jaw to the right and to the left. In this case, excessive movements in this joint can lead to dislocation of the lower jaw forward. What anatomical formation prevents this violation?

**Answer:** Dislocation of the head of the lower jaw forward prevents the articular tubercle of the temporal bone.

**№2.** With vertical incidence from the height, the victim was diagnosed with a compression fracture of the lumbar vertebra. At the same time, the curvature of the lordosis of this spine sharply increased. Damage to which ligament can be accompanied by such a change in the curvature of the spinal column?

**Answer:** The increase in lordosis of the lumbar spine may occur if the integrity of the anterior longitudinal ligament of this department.

#### **Lesson №6**

**1. Theme: Connections of the bones of the shoulder girdle and the free part of the upper limb: structure and functions. Connections of the bones of the pelvic girdle and the free part of the lower limb: structure and functions.**

**2. Aim:** To study joints of the bones of the shoulder girdle and free upper limb. To study the bones of the pelvic girdle and the free lower limb structure, topography and functions.

**3. Learning objectives:** Teach students to know the connections of the bones of the shoulder girdle and the free upper limb, determining the axes and possible movements around them. Teach students to be able to find, name and show on tablets, models of joining the pelvic bones and free lower limb.

**4. Main questions of the theme:**

1. The structure of the acromioclavicular joint
2. The structure of the shoulder joint
3. The structure of the elbow joint
4. The structure of the wrist joint
5. The structure of the interphalangeal joint
6. Name and show the bones that form the pelvis.
7. Name and show the connections connecting the pelvis into one whole.
8. Features of the structure of the hip joint.
9. Name the bones and articular surfaces that form the knee joint.
10. Features of the ankle joint structure.
11. List and show the joints of the foot.

**5. Methods of learning and teaching:**

Work in small groups with anatomical preparations, with a skeleton, tablets, posters. Work on the interactive anatomical table "Pirogov". Cases in **Platonus. Vebinars by means of Webex/Zoom/WhatsApp. Videos in Youtube.**

**6. Assessment Methods:**

An oral survey demonstrating the anatomical structures on the skeleton, posters, tablets, the Pirogov interactive anatomical table, the solution of test tasks and situational tasks.

**7. Bibliography:**

**In english:**

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6. Консультант студента <http://www.studmedlib.ru/>
7. Ашық кітапхана [https:// kitap.kz/](https://kitap.kz/)

**8. Control (questions, tests, tasks):**

**Questions:**

1. Shoulder joint
2. The elbow joint
3. The wrist and joint of the bones of the hand
4. Sacro-iliac joint.
5. The pubic symphysis.
6. Large, small pelvis, size and sexual characteristics.
7. Hip joint.
8. Knee joint.

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9. The tibial joint.  
 10. Connections of the bones of the foot.

**Tests:**

- Elbow joint in structure:
  - Simple
  - Complicated +
  - Combined
  - Integrated
  - Ankylosis
- Shoulder joint in structure:
  - Simple +
  - Complicated
  - Combined
  - Integrated
  - Ankylosis
- Wrist joint in structure:
  - Simple
  - Complicated +
  - Combined
  - Integrated
  - Ankylosis
- Type of connection, if there is a connective tissue in the gap between the bones:
  - synchondrosis
  - synostosis
  - syndesmosis +
  - diarrhea
  - hemiarthrosis
- Type of connection, in which the bones are connected by means of a cartilaginous tissue:
  - synchondrosis +
  - syndesmosis
  - synostosis
  - diarrhea
  - hemiarthrosis
- Type of connection, in which the bones are connected through bone:
  - synchondrosis
  - syndesmosis
  - synostosis +
  - diarrhea
  - hemiarthrosis
- In the interphalangeal joints of the hand, it is possible:
  - rotation
  - bending +
  - offset
  - reduction
  - Lead
- The shoulder joint is formed by:
  - articular disc
  - the upper transverse ligament of the scapula
  - Menisci

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- D) head of humerus +
- E) the lower transverse ligament of the scapula
- 9. To its own scapulae are:
  - A) beak-clavicular ligament
  - B) yellow ligament
  - C) beak-brachial ligament
  - D) the upper transverse ligament of the scapula +
  - E) inguinal ligament
- 10. Uniaxial joints are:
  - A) Shoulder joint
  - B) the adrenoid joint +
  - C) wrist joint
  - D) hip joint
  - E) knee joint
- 11. Biaxial joints are:
  - A) the humerus
  - B) wrist joint +
  - C) hip joint
  - D) the adrenoid joint
  - E) Shoulder joint
- 12. Name of joints anatomically isolated, but functionally interrelated:
  - A) simple
  - B) complex
  - C) Integrated
  - D) combined +
  - E) half-joint
- 13. An articulation having more than two articular surfaces is called:
  - A) simple
  - B) complex +
  - C) an integrated
  - D) combined
  - E) polustavom
- 14. Auxiliary joints are:
  - A) articular surface
  - B) articular disc +
  - C) articular cavity
  - D) joint capsule
  - E) synovial fluid
- 15. The joint disk is available:
  - A) in the knee joint
  - B) in the ankle
  - C) in the radiocarpal joint +
  - D) in the humerus
  - E) in the hip joint
- 16. To multi-axial joints are:
  - A) muscular joints
  - B) cylindrical joints
  - C) spherical joints +
  - D) block joints
  - E) ellipsoidal joints

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17. The wrist joint in shape is:

- A) an ellipsoid joint +
- B) with a spherical joint
- C) flat joint
- D) cylindrical joint
- E) saddle joint

18. The dendrient joint is:

- A) carpometacarpal joint of the big toe +
- B) temporomandibular joint
- C) wrist band
- D) the adrenoid joint
- E) the articular joint

19. Block-shaped joints include:

- A) Shoulder joint
- B) hip joint
- C) wrist joint
- D) interphalangeal joints of the hand +
- E) the rib head joint

20. The cylindrical joints include:

- A) the humerus
- B) proximal radiophilic joint +
- C) Shoulder joint
- D) atlanto-occipital joint
- E) sternoclavicular joint

21. To globose joints are:

- A) Shoulder joint +
- B) knee joint
- C) the humerus articulation
- D) wrist joint
- E) interphalangeal joints of the hand

22. Around the sagittal axis is produced:

- A) reduction +
- B) rotation
- C) circular motions
- D) bending
- E) Extension

23. Around the front axle:


- A) reduction
- B) lateral displacement
- C) lead
- D) Extension +
- E) rotation

### Tasks:

**№1.** On the X-ray image of the wrist joint in the medial part, the "X-ray gap" is strongly expanded. Is this a pathology??

**Answer:** The "X-ray crack" of the wrist joint in the medial part is expanded correspondingly to the articular disc located there, which does not retain X-rays.

**№2.** The most common injury of the joints of the upper limb is the dislocation of the shoulder joint. Specify which anatomical factors contribute to the dislocation of the shoulder joint?

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**Answer:** The most common dislocation of the shoulder joint is facilitated by:

The absence of a well-expressed ligamentous apparatus, a free joint capsule, incongruity for the size of articular surfaces.

**№3.** Mother brought a seven-year-old daughter to see a surgeon. The reason for her treatment to the doctor was that the daughter's extension of the forearm in the elbow joint was more than 180. However, the surgeon did not establish the fact of pathology and reassured the agitated mother. Why the extension in the elbow joint more than 180 in the girl's doctor did not consider pathology?

**Answer:** In children and some women, the forearm can be re-braided at the elbow joint due to the weakness of the ligament apparatus and the small size of the ulnar process.

**№4.** The surgeon needs to remove a part of the injured foot along the Shoparov's joint line. Which bundle must be crossed so that the indicated operation is possible?

**Answer:** To partially remove the bones of the injured foot along the Shoparov's joint line, it is necessary to cross the bifurcate ligament (calcaneus-navicular and heel-cube-shaped).

**№5.** When jumping in length, the athlete at the moment of landing sharply leaned back and felt a strong pain in the hip joints. On examination, the traumatologist found that the victim was unable to produce an extension of the thigh. The doctor diagnosed stretching of the ligaments of the hip joint. Which ligaments of the hip joint suffered more in this trauma?

**Answer:** Under the described conditions, the ileum ligament ligament was severely affected.

**№6.** The patient after the sciatic nerve had a complication in the form of paralysis of the posterior group of hamstrings. What disorders in the movement of the lower limb will accompany this complication?

**Answer:** It will be difficult for the patient to bend and turn the hip outward.

### Lesson №7

**1. Theme: Muscles and fascia of the head and neck: structure, topography and functions.**

**2. Aim:** To study the muscles and fascia of the head, neck their structure, topography and functions. To study the muscles and fascia of the trunk their structure, topography and functions.

**3. Learning objectives:** Teach students to be able to find, name and show on the tablets, models of the muscles of the head and neck. Know the distinctive features, functions.

**4. Main questions of the theme:**

1. Features of mimic muscles.
2. Structure, function of facial muscles.
3. Structure, function of fascia of masticatory muscles.
4. Classification of the neck muscles.
5. Fascia of the muscles of the neck

**5. Methods of learning and teaching:**

Work in small groups with anatomical preparations, with a skeleton, tablets, posters. Work on the interactive anatomical table "Pirogov". Cases in Platonus. Vebinars by means of Webex/Zoom/WhatsApp. Videos in Youtube.

**6. Assesment Methods:**

An oral survey demonstrating the anatomical structures on the skeleton, posters, tablets, the Pirogov interactive anatomical table, the solution of test tasks and situational tasks.

**7. Bibliography:**

**In english:**

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**8. Control (questions, tests, tasks):**

**Questions:**

1. Features of skeletal muscles from other facial muscles.
2. Structure and function of the ear wrench and the cranial vault.
3. Chewing muscles and their blood supply.
4. intermuscular space and skull bones-fascia
5. Classification of the neck muscles and their blood supply.
6. Surfaces of the neck muscles and their blood supply.
7. Deep neck muscles and their blood supply.
8. Suprasublingual and subsublingual and their blood supply.

**Tests:**

1. Muscles of the head:
  - A) The subcutaneous muscle of the neck
  - B) Chewing muscle +
  - C) Large pectoralis muscle
  - D) The widest back muscle
  - E) The biceps brachialis muscle
2. Superficial muscles of the neck:
  - A) The subcutaneous muscle of the neck +
  - B) Chewing muscle
  - C) Large pectoralis muscle
  - D) The widest back muscle
  - E) The biceps brachialis muscle
3. Muscle lifting the lower jaw:
  - A) lateral pterygoid muscle
  - B) temporal muscle +
  - C) Muscular muscle of the mouth
  - D) the buccal muscle
  - E) large zygomatic muscle
4. Muscle attached to the coronoid process of the lower jaw:
  - A) the actual chewing muscle
  - B) temporal muscle +
  - C) pterygoid medial muscle
  - D) pterygoid lateral muscle
  - E) the buccal muscle
5. Mimic muscle, squeezed eyes:



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- A) temporal
- B) the actual chewing
- C) pterygoid medial
- D) pterygoid lateral
- E) eye muscle +
- 6. Mimic muscle of the head, lifting the upper lip:
  - A) m.buccinator
  - B) m.levator labii superioris +
  - C) m.levator anguli oris
  - D) m.depressor labii inferioris
  - E) m.depressorangulioris
- 7. Muscles of the head are involved in:
  - A) articulate speech +
  - B) bringing
  - C) lead
  - D) bending
  - E) Extension
- 8. Features of facial muscles:
  - A) are woven into the skin +
  - B) begin and attach to the bone
  - C) take part in the act of swallowing
  - D) take part in the act of inspiration
  - E) take part in the exhalation act
- 9. The neck muscle, with a two-sided cut which the head is held in an upright position:
  - A) the subcutaneous muscle of the neck
  - B) Chest-clavicle-mastoid +
  - C) maxillofacial
  - D) bipedal
  - E) Sinulo-sublingual
- 10. The neck muscle, which lies above the hyoid bone:
  - A) the subcutaneous muscle of the neck
  - B) Chest-clavicle-mastoid
  - C) sterno-hyoid
  - D) maxillofacial +
  - E) scapular-hyoid
- 11. The neck muscle, which lies below the hyoid bone:
  - A) maxillofacial
  - B) scapular-hyoid +
  - C) bipedal
  - D) an awl-hyoid
  - E) chin-sublingual
- 12. The fascia of the neck, covering the pre-vertebral muscles:
  - A) surface
  - B) superficial leaf of own fascia
  - C) deep leaf of own fascia
  - D) internal fascia
  - E) the invertebrate +
- 13. Nadalysis muscles:
  - A) Sterno-thyroid
  - B) bile-abdominal muscle +

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- C) scapular-hyoid muscle
- D) the shi-hyoid muscle
- E) temporalis muscle
- 14. Mimic muscles include:
  - A) eye muscle +
  - B) medial pterygoid muscle
  - C) Chewing muscle
  - D) temporalis muscle
  - E) bile-abdominal muscle
- 15. The sub-lingual muscles:
  - A) sternum-hyoid muscle +
  - B) an awl-hyoid muscle
  - C) Maxillofacial muscle
  - D) bile-abdominal muscle
  - E) deltoid muscle
- 16. Subcutaneous muscle functions of the neck:
  - A) protects the saphenous veins from compression +
  - B) lowers the lower jaw
  - C) omits the sub-lingual cell
  - D) pulls up the chest
  - E) lifts the hyoid bone
- 17. Features of the structure and topography of facial muscles:
  - A) are located superficially, under the skin +
  - B) pulls the upper chest
  - C) lowers the lower jaw
  - D) Raises the bony tongue.
  - E) drive the lower jaw
- 18. Features of the structure and function of the masticatory muscles:
  - A) attach to the lower jaw +
  - B) Raises the bony tongue
  - C) are centered around the skull holes
  - D) reflect the inner state of mind
  - E) are attached to the skin
- 19. The beginning of the actual chewing muscle:
  - A) pterygoid process of sphenoid bone
  - B) zygomatic arch +
  - C) triceps
  - D) alveolar arch of the upper jaw
  - E) hyoid bone
- 20. To the chewing muscles are:
  - A) the buccal muscle
  - B) medial pterygoid muscle +
  - C) large zygomatic muscle
  - D) small zygomatic muscle
  - E) the circular muscle of the mouth

#### Tasks:

**№1.** It is known that the feature of mimic muscles is the absence of fascia and a peculiar attachment of muscles: beginning on the bones of the facial skull, they end in the skin of the face.

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Which of the mimic muscles is an exception to these common features, i.e. has a fascia and beginning on one bone is attached to the other bone of the facial skull?

**Answer:** This muscle is the buccal muscle.

**№2.** As a result of traumatic head injury, the victim lost the ability to push the lower jaw forward. With the defeat of any chewing muscles, this movement is limited in the temporomandibular joint?

**Answer:** Extension of the lower jaw forward is not possible with bilateral damage to the lateral pterygoid masticatory muscles.

**№3.** When injured in the neck, the patient began to bleed heavily, complicated by air embolism. What contributes to the occurrence of such severe complications in the wounds of the neck?

**Answer:** The following features contribute to the occurrence of severe complications in neck injuries:

- in the neck area is a large number of veins and arteries
- the presence of a large number of muscles actively involved in breathing
- a large number of fascias that prevent vessels from falling off

### **Lesson №8**

**1. Theme: Muscles and fascia of the trunk: structure, topography and functions. Blood supply, venous outflow, innervation.**

**2.Aim:** Teach students to be able to find, show and call in Latin muscles and fascia of the trunk. Know the beginning, the place of attachment and the function of muscles.

**3. Learning objectives:** Teach students to find, call in Latin and show the muscles of the pelvic girdle and free lower limb. Know their functions.

**4. Main questions of the theme:**

1. Classification of the muscles of the chest.
2. Fascia of the breast.
3. The structure of the diaphragm.
4. Classification of the muscles of the back.
5. Fascia of the back.
6. Areas of the abdomen.
7. Classification of abdominal muscles.
8. The structure of the inguinal canal.
9. Knowledge of weak "places" of the abdominal wall for practical medicine.

**5. Methods of learning and teaching:**

Work in small groups with anatomical preparations, with a skeleton, tablets, posters. Work on the interactive anatomical table "Pirogov". Cases in Platonus. Vebinars by means of Webex/Zoom/WhatsApp. Videos in Youtube.

**6. Assesement Methods:**

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## 8. Control (questions, tests, tasks):

### Questions:


- 1.Surface muscles of the chest.
2. Deep chest muscles.
- 3.Ofresence diaphragms, triangles.
4. Respiratory function of chest muscles and diaphragms.
5. Superficial muscles of the back.
6. Deep muscles of the back.
7. The role of the back muscles in the movement of the human body.
8. The front group of abdominal muscles.
- 9.Bock group of abdominal muscles.
10. Back group of abdominal muscles.
- 11.The vagina of the rectus abdominis muscle.
12. White belly line, umbilical ring.
13. The walls of the inguinal canal.
14. The structure of the external inguinal ring.
- 15.Stroenie internal inguinal canal.
16. Content of the inguinal canal in men and women.

### Tests:

1. Muscles of the back:
  - A) The subcutaneous muscle of the neck
  - B) Chewing muscle
  - C) Large pectoralis muscle
  - D) The widest back muscle +
  - E) The biceps brachialis muscle
2. Muscles of the back:
  - A) two-abdominal
  - B) quadiceps
  - C) diamond-shaped +
  - D) bending
  - E) semitendinous
3. The trapezius muscle is referred to the muscles:
  - A) Heads
  - B) Neck
  - C) Backs +
  - D) Breasts
  - F) The pelvis
4. Chest muscles:
  - A) The subcutaneous muscle of the neck
  - B) Chewing muscle
  - C) Large pectoralis muscle +
  - D) The widest back muscle

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- E) The biceps brachialis muscle
5. Muscle of the abdomen:
- A) The subcutaneous muscle of the neck
- B) Chewing muscle
- C) Large pectoralis muscle
- D) Straight abdominal muscle +
- E) The biceps brachialis muscle
6. Superficial muscle of the back:
- A) trapezoidal +
- B) rectifying muscle
- C) small thoracic
- D) ilio-lumbar
- E) tailoring
7. Deep muscle of back, straightening trunk:
- A) m.trapezius
- B) m.latissimus dorsi
- C) m.rhomboideus minor
- D) m.erector spinae +
- E) m. rhomboideus major
8. The chest muscle located between the collarbone and the 1st rib.
- A) large pectoral m.pectoralis major
- B) small chest m. pectoralis minor
- C) subclavian +
- D) serrated front
- E) Subcostal
9. The back wall of the vagina of the rectus abdominis above the navel is formed:
- A) aponeurosis of the external oblique abdominal muscle
- B) the anterior plate of the aponeurosis of the internal oblique abdominal muscle
- C) posterior plate of the aponeurosis of the internal oblique muscle and aponeurosis of the transverse abdominal muscle +
- D) aponeurosis of the pyramidal muscle
- E) aponeuroses of all three abdominal muscles
10. The back wall of the inguinal canal forms:
- A) aponeurosis of the external oblique muscle
- B) aponeurosis of the internal oblique muscle
- C) aponeurosis of the transverse muscle
- D) transverse fascia +
- E) inguinal ligament
11. The superficial muscles of the back are:
- A) the upper back cog muscle +
- B) Semiartificial muscle
- C) rectifying muscle
- D) a partitioned muscle
- E) Muscles-rotators
12. The large diamond-shaped muscle is attached to
- A) corner of II-V ribs
- B) the upper edge of the scapula
- C) the medial edge of the scapula +
- D) the lateral edge of the scapula
- E) scapula acromion

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13. The deep muscles of the back are:

- A) the muscle that lifts the scapula
- B) rhomboid muscle
- C) transverse-spinal muscle +
- D) the widest back muscle
- E) trapezius muscle

14. The large pectoral muscle is attached to:

- A) intermodular humerus of humerus
- B) crest of large bump of humerus +
- C) coracoid scapula
- D) medial edge of scapula
- E) cartilages of the upper eight ribs

15. Small pectoral muscle originates from:

- A) 1-II ribs
- B) VI-VIII ribs
- C) II-V edges +
- D) sternum
- E) clavicle

16. Muscles that promote the expansion of the chest:

- A) large pectoralis muscle +
- B) deltoid muscle
- C) Shoulder Muscle
- D) beak-brachial muscle
- E) lower posterior cog muscle

17. Muscles lowering the ribs:

- A) external intercostal muscles
- B) internal intercostal muscles +
- C) deltoid muscle
- D) Shoulder Muscle
- E) upper posterior cog muscle

19. Inguinal canal walls:

- A) deltoid muscle
- B) rectus abdominis
- C) square muscle
- D) inguinal ligament +
- E) white belly line

20. The deep inguinal ring on the posterior surface of the anterior abdominal wall correspond to:

- A) medial inguinent
- B) the suprasubarial fossa
- C) lateral inguinal fossa +
- D) Vascular lacunae
- E) white belly line

### Tasks:

**№1.** To maintain the optimal shape of the abdomen, the physician recommends that the straight muscles of the abdomen be strengthened in the physiotherapy exercises. What exercises are advisable to recommend to clients to strengthen the rectus muscles?

**Answer:** To train the straight abdominal muscles, it is advisable to perform exercises on flexion and extension of the spinal column.

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**№2.** The patient entered with complaints of pain in the epigastric region. According to the surgeon, these complaints are associated with the possibility of developing hernia formations.

Name the weak points in the anterior abdominal wall in the epigastric region, which, with an increase in intra-abdominal pressure, may be the places of formation of hernias.

**Answer:** Such places in the epigastric region may be crevices in the white belly line.

**№3.** During the training period of the gymnast, the coach drew attention to the weakness of the muscles that help lower the shoulder blade.

Exercise of which muscles should be paid attention to the athlete to make up for the shortcoming prompted by the coach?

**Answer:** It is necessary to develop exercises to increase the load on the small thoracic and subclavian muscles.

### **Lesson №9**

**1.Theme: Muscles and fascia of the shoulder girdle and the free part of the upper limb: structure, topography and functions. Muscles and fascia of the pelvic girdle and the free part of the lower limb: structure, topography and functions. Leather and its derivatives.**

**2.Aim:** To study the structure of the muscles and fascia of the shoulder girdle, shoulder, forearm and hand. Tell the functions of individual muscles and muscle groups.

#### **3. Learning objectives:**

The student should know and be able to find, name and show on models, muscles of the shoulder girdle and free upper limb. Know their functions. Teach students to find, call in Latin and show the muscles of the pelvic girdle and free lower limb.

#### **4. Main questions of the theme:**

1. Back muscle group of the shoulder girdle, their function.
2. Anterior muscle group of the shoulder girdle, their function.
3. Anterior muscle group of the shoulder, their function.
4. Back muscle group of the shoulder, their function.
5. Front group of muscles of the forearm, their function.
6. Back group of muscles of the forearm, their function.
7. The muscles of the hand, their function.
8. Muscles of pelvic girdle, topography.
9. Muscles of the hip, topography.
10. Muscles of the lower leg, topography.
11. Muscles of the foot, topography.

#### **5. Methods of learning and teaching:**

Work in small groups with anatomical preparations, with a skeleton, tablets, posters. Work on the interactive anatomical table "Pirogov". Cases in Platonus. Vebinars by means of Webex/Zoom/WhatsApp. Videos in Youtube.

#### **6. Assesment Methods:**

An oral survey demonstrating the anatomical structures on the skeleton, posters, tablets, the Pirogov interactive anatomical table, the solution of test tasks and situational tasks.

#### **7. Bibliography:**

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3.Frank H. Netter, M.D. Atlas of Human Anatomy Fourth Edition, 2004.

## 8. Control (questions, tests, tasks):


### Questions:

1. Back muscle group of the shoulder girdle, their function.
2. Anterior muscle group of the shoulder girdle, their function.
3. Anterior muscle group of the shoulder, their function.
4. Back muscle group of the shoulder, their function.
5. Front group of muscles of the forearm, their function.
6. Back group of muscles of the forearm, their function.
7. The muscles of the hand, their function.
8. Anterior muscle group of the pelvic girdle, their function.
9. Back muscle group of the pelvic girdle, their function.
10. Anterior group of hip muscles, their function.
11. Rear hip muscle group, their function.
12. Medial group of hip muscles, their function.
13. Anterior group of calf muscles, their function
14. Back muscles of the lower leg, their function.
15. The lateral muscles of the tibia, their function.
16. The muscles of the rear of the foot, their function.
17. Muscles of the sole, their function.
18. Fascia and vagina of the tendons of the lower limb.
- 19.Topography of the lower limb

### Tests:

1. The muscle of the upper limb:
  - A) The subcutaneous muscle of the neck
  - B) Chewing muscle
  - C) The biceps
  - D) The widest back muscle
  - E) Deltoid muscle +
2. Muscles of free upper limb:
  - A) The subcutaneous muscle of the neck
  - B) Chewing muscle
  - C) Large pectoralis muscle
  - D) The widest back muscle
  - E) Double-headed arm muscle +
3. Muscles flexing the shoulder in the shoulder joint:
  - A) Shoulder Muscle
  - B) triceps brachialis muscle
  - C) biceps arm muscle +
  - D) large round muscle
  - E) small pectoralis muscle
4. Muscles extending the shoulder in the shoulder joint:
  - A) small round muscle
  - B) subscapular muscle
  - C) beak-brachial muscle
  - D) triceps brachium muscle +



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E) biceps arm muscle

5. On the anterior wall of the axillary cavity:

A) clavicle-thoracic triangle +

B) three-sided hole

C) femoral triangle

D) femoral canal

E) four-sided hole

6. The walls of the channel of the radial nerve form:

A) beak-brachial ligament

B) humerus +

C) Shoulder Muscle

D) Brachial muscle

E) biceps arm muscle

7. Muscles of the shoulder acting on the elbow joint:

A) double-headed muscle +

B) beak-brachial muscle

C) deltoid muscle

D) quadriceps

E) large round muscle

8. Muscles of the front surface of the shoulder:

A) triceps brachialis muscle

B) beak-brachial muscle +

C) Musculoskeletal

D) deltoid muscle

E) large round muscle

### Tasks:

**№1.** As a result of injury, the affected person had a disrupted function of the posterior muscle group of the shoulder. What disorders arise in the function of the elbow joint?

**Answer:** Under these conditions, the forearm extension function will be impaired.

**№2.** When falling in the forest, the child hit his forearm with a sharp bitch. When examined by a surgeon, a penetrating wound of the lower quarter of the forearm is established. The victim can not make the turn of the hand inside. Which muscle was hurt in this?

**Answer:** When a trauma suffered a square forearm pronator.

**№3.** The patient's panaritium were complicated by a purulent inflammation of the little finger. Why there was a complication and why not lying next to the lying finger.?

**Answer:** The purulent process spread along the synovial vagina to the area of the carpal tunnel, where the synovial vagina of the finger flexor is located next to it, and along it pus reached the little finger, i.e. there was a Y-shaped inflammation. The adjacent finger does not spread, because the II finger has an isolated synovial vagina.

**№4.** The surgeon needs a cut in the femoral triangle for gentle operation on the hip vessels. What are the guidelines for the boundaries of the femoral triangle.

**Answer:** The upper border is the inguinal ligament, the lateral border is the sartorius muscle, the medial border is the long adductor femur muscle.

**№5.** When playing soccer, the most frequent blows to the ball are made by the toe of the foot with a sharp extension of the shin. What muscles do this basic leg movement?

**Answer:** This movement is performed by the quadriceps femoris muscle.