

BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

Department of human anatomy

GUIDELINES

<i>Academic discipline</i> дисципліна	HUMAN ANATOMY
Module №	1
Content module №	2
The theme of the lesson	Sacrum. Coccyx. Ribs. Chest.
Course	1
The number of hours	3

Kyiv 2017

1. Specific objectives

As a result of the classes a student should know and be able to:

- 1.1. Identify and classify bone participating in the formation of the chest, describe their main functions.
- 1.2. To determine the overall plan of the structure of bones participating in the formation of the chest.
- 1.3. To demonstrate the sacral vertebrae and the coccygeal parts of the vertebral column.
- 1.4. To determine bone age characteristics sacral and coccygeal parts of the spinal column.
- 1.5. To demonstrate and call the characteristics of the structure and sacral vertebrae coccygeal parts of the spinal column.
- 1.6. To demonstrate of the sacrum, surfaces, edges and movement on them.
- 1.7. To determine which formation of the sacral bone is the result of merging elements sacral vertebrae.
- 1.8. To demonstrate and call the characteristics of the structure of the coccyx.
- 1.9. Classify ribs. Demonstrate of rib bone formation on his part that are characteristic of the typical ribs, rib distinguish right from left.
- 1.10. Identify the signs that are characteristic I, X, XI and XII ribs, ie atypical ribs.
- 1.11. To determine the age characteristics of ribs and sternum

2. Basic training level.

Before classes a student should know and be able to:

- 2.1. Identify the components of a bone.
- 2.2. Apply knowledge of basic provisions lecture on the topic "General osteology"
- 2.3. Classify bone (in structure and form).
- 2.4. To determine the structure of long and short, flat, spongy and tubular, mixed, pneumatic, atypical bone.
- 2.5. Identify the anatomical planes of the human body and anatomical terms to indicate the location of the bones and their parts.
- 2.6. To demonstrate divisions in preparation vertebral column and the number of vertebrae that form them.
- 2.7. Identify the main functions spine and their clinical significance.
- 2.8. To determine the general laws of the structure of the vertebrae.

2.9. To demonstrate and call the characteristics of the structure of the cervical, thoracic and lumbar vertebrae.

3. Organization of educational content material.

Teaching material is described in a logical sequence with using of anatomical preparations, involving structural logic, tables, figures that reflect the content of the main topics of practical lessons.

4. The content of the material.

4.1. The spine is part of the axial skeleton man and is divided into sections:

- Cervical (consists of 7 cervical vertebrae)
- Chest (consists of 12 thoracic vertebrae)
- Lumbar (consists of 5 lumbar vertebrae)
- Sacral (consisting of 5 fused in the adult sacral vertebrae)
- Coccygeal (consists of 3-5 fused in the adult rudimentary coccygeal vertebrae)

4. 2. During the study of individual vertebrae, stick to this plan:

1. Name of the bone (Ukrainian and Latin).
2. The ratio vertebra to a department of the spinal column.
3. Targeting vertebra in the spine with the definition of right or left parts (for the pair).
4. Name and show the main parts of the vertebra. Show anatomical structures that differentiate them.
5. Describe the structure of each part (anatomical contour elements on surfaces, holes, grooves, channels).
6. Classification of the vertebral bones.

4.3. The structure of the sacral and coccygeal bones.

Sacrum [sacral vertebra and -V], base and top sacrum, promontory, top articular process, side, ear-like surface tuberosity sacrum, pelvic surface, lateral line, front sacral holes, dorsal surface, the median sacral crest and rear sacral holes medial sacral crest, lateral sacral crest sacral canal, sacral hiatus, sacral horn. Ischium bone [coccyx vertebrae I - IV], coccygeal horn.

4.4. Ribs [I-XII]

- True ribs [I-VII]
- False ribs [VII -XII]
- Oscillating edge [XI-XII]

Rib structure:

Rib bone, costal cartilage, head of the rib, articular surface of the head and groove, edges neck rib crest cervical rib, hump ribs, rib tubercle, articular surface, the body edge, corner edge, groove edge.

Features of the first rib's structure:

- An upper and lower surface.
- Has inner and outer edges.
- Head rib has a crest head edge (and XI, and XII; all other edges have).
- Rib hump coincides with the angle of the body edges.
- On the upper surface of the first rib hump is forward staircases muscle furrows subclavian artery and vein.

4.5. Sternum:

- Handle of sternum,
- Clavicular notch,
- Jugular notch,
- Sternal angle,
- The body of the sternum,
 - Xiphoid process,
 - Cutting edge.

5. Methods of educational process on a practical lesson.

5.1. Preparatory stage.

5.1.1. In order to motivate students to study the training material topics it is stressed that sacrum and coccyx are involved in the formation of the vertebral column and the belt of the lower limbs, which performs various functions, and the edges of the sternum form together with the thoracic vertebrae a chest, forming a wall of the chest cavity, where the vital organs are located. The bones of the spinal column, ribs, sternum form the resistance and the body provides movement (there are levers that set in motion the muscles) form a cavity (spinal canal, chest), protecting the spinal cord and internal organs are involved in mineral metabolism, deposited calcium, phosphorus, etc., vitamins A, D, C. in a chest and ribs are the red bone marrow, which is important when it is transplanted into people with leukemia, radiation sickness, etc .. Defining the structural features of the vertebrae enables future doctors to characterize the normal position of each vertebra in a single functioning system of the spinal column, characterized by structural features and functions of the intervertebral joints of the lumbar sacral and other compounds, to explain the place of fixing communications and insertion of muscles, providing a normal motion in the spine. Through the holes and channels sacrum, formed by accretion vertebrae, undergo spinal nerves and blood vessels and forme connections with neighboring cavities (conditions for the spread of inflammation, the appearance of paralysis and others). The reason that the sacral canal contain fibers of spinal nerves, which together provide the normal function of internal organs and walls of large and small pelvis, lower limb of a person. Knowledge of

details of the bone structure and sacral coccygeal parts of the spine and their position in space is necessary for understanding the pathogenesis of diseases of the musculoskeletal system of man. Creating a whole pelvis sacrum and coccyx during normal development provide physiological childbirth in women. Emphasized rapid accession percentage of lumbar vertebrae to the sacrum , increased lumbar vertebrae , functional and clinical significance of physiological curves of the spine (scoliosis formation of pathological changes). The study of the structural features of each studied vertebrae, ribs, sternum, understanding the functions of these lesions is necessary for the doctor of any specialty, but first surgeon, neurosurgeon, traumatologist, neurologist, neonatologists, obstetricians - henikoloha, therapist. Students meet specific goals and plan of occupation. A control entry-level training of students.

5.1.2. Students are introduced to specific objectives and lesson materials on "Methodological guidelines (p.1, p.3)"

5.1.3. Implementation of standardized control entry-level training of students using tests and questions.

5.2. The main stage

5.2.1. Practical work of students.

On the human skeleton, on radiographs, tables, illustrations of the manual "Human Anatomy. (Control Self preparation for practical classes)" define parts of the spine, sacral location it and coccygeal vertebrae; bone building the chest. In some preparations are defined and demonstrated the general structural features of the vertebrae, the sacral details of the structure and coccygeal bones, ribs and sternum referred to the content of the training material (paragraph 4).

Determine the functional and clinical significance of sacral canal, where the spinal nerves, passing vessels exit. We analyze which parts of vertebrae are involved in the formation of the sacral canal, intervertebral holes. Identify holes and grooves that contain blood vessels and nerves. Analyze the place of attachment of muscles and ligaments. It is explained which parts of the sacral and coccygeal vertebrae form the intervertebral joints. It is analyzed the possible movements against major axes based on the spatial arrangement of the articular surfaces of the articular processes of sacral vertebrae. In order to form new knowledge and skills, practical skills according to specific objectives, students have to show their teacher all the anatomical structure of each of the formations. Oral examination accompanied by a demonstration of anatomical structures in the skeleton, some anatomical preparations in the figures, and solving situational tasks and tests that brings the most students to the clinical situation. Answers discussed student and teacher.

5.3 The final stage.

A standardized final control of knowledge. We estimate the current success of each student during classes, score is assigned to the log of visits and success. Estimates are announced and elder groups simultaneously puts them in the roll of

the success of attendance of students and their teacher certifying the signature and records in an electronic journal.

Students are informed about the topic of the next classes and instructional techniques to prepare for it.

6. Applications:

- Questions to control the entry level of students' knowledge.
- Questions to control the final level of training.
- Formatized tests (STEP 1).
- Practical tasks and illustrations in the manual "Human Anatomy"

APPLICATIONS

Questions to control the entry level of students' knowledge

1. What are the main anatomical planes. What anatomical terms are used in relation to these planes for a total review of the sacrum, coccyx, ribs, sternum?
2. Describe and show orientation processes of the vertebrae to the planes of the body.
3. What axis do you know? What moves do you think are performed between the coccyx and sacrum? With respect to any axis?
4. Categorize the bones (which include bone ribs, sternum, sacrum)?
5. What is an atypical bone? Give examples of an atypical bone.
6. What is the total number of vertebrae in the spine of man?
7. Name and show parts of the spinal column.
8. What is the number of vertebrae in every department of the spine?
9. Demonstrate on the skeleton how does the vertebrae body change along the spinal column.
10. What are the main functions of the spinal column.
11. What are the main structural features of typical sacral vertebrae.
12. Which vertebrae are fused in the adult?
13. What is a form of vertebrae vertebral hole?

Questions to control the final level of training

1. What sacral lesions in bone are the result of a merger of elements sacral vertebrae?
2. Demonstrate sacral vertebra parts that form the intervertebral hole.
3. What processes, which are fused sacral vertebrae, located in the median plane?
4. Demonstrate basic parts of the sacrum.
5. Demonstrate surface of the sacrum. In relation to the which plane they are located?
6. What is the top plane of the articular processes of the first sacral vertebra?
7. How are the ribs classified?
8. Which ribs are called the true ribs?
9. What is the false rib?
10. What are the characteristic features of the typical ribs' heads?
11. What is the furrow for vessels on the upper surface and edges?
12. What rib has an upper and lower surface?
13. What is the longest edge?
14. What body surfaces are typical for the ribs?
15. What parts does the sternum have? In what plane is it?

Tests "Step 1"

1. Male, 46, fell and injured sacrum. X-ray revealed the damage the crest of the sacrum, which formed merger spinous processes sacral vertebrae. What sacrum crest formed by the merger of spinous processes?

- A. Median sacral crest.
- B. Right medial crest.
- C. The left medial crest.
- D. Right side crest.
- E. The left side crest.

2. The doctor patient with asthma suggested during the attack of asthma irritation use reflex zones, which is located in the area of the projection of the skin sternal notch odd. Which is odd sternal notch?

- A. Incisura costalis I.
- B. Incisura costalis II.
- C. Incisura jugularis
- D. Incisura clavicularis
- E. Incisura costalis VII

3. Male 30, fell and injured sacrum. X-ray revealed the damage crests of sacrum, which formed merger transverse processes of the sacral vertebrae. What crests sacrum damaged?

- A. Middle and right medial crest.
- B. Right side and left side ridges.
- C. The right lateral and right medial crest.
- D. The left lateral and left medial crest.
- E. Median and left medial crest.

4. The woman, 36, injured chest and turned to the surgeon with complaints of pain in the left side of the chest.

X-ray revealed a fracture of the left edge, which is connected to the rib tenderloin, located at the angle of the sternum. What damaged edge?

- A. I. II. C. III. D. IV. E. V.

5. The patient, 40 years old, felt pain after a fall. The doctor found a broken rib, which is not the articular surface on the hill edge.

What a rib injured patient?

- A. I. XII. S. VII. D. X. E. III.

6. The doctor of the patient, who for many years working as a loader, revealed tenderness in the sternum parts of the cuts that are articular joint surfaces of the shoulder girdle. What sternal notch participates in the joint of the shoulder belt?

- A. Incisura costalis I.
- B. Incisura costalis II.
- C. Incisura jugularis.
- D. Incisura clavicularis.
- E. Incisura costalis VII.

7. A woman, 43 years old, fell and injured sacrum. X-ray revealed the damage crests of sacrum, which formed

merger articular processes sacral vertebrae. What sacrum crest formed by the merger of the sacral articular processes bones?

- A. median and left medial crest.
- B. Right medial and left medial crest.
- C. Right side and left side ridges.
- D. Right medial and left lateral ridges.
- E. The left medial and right lateral ridges.

8. Male, 50, injured his chest. Radiological longest established fractured right rib. What is the longest edge?

- A. VII. B. II. C. I. D. IV. E. V.

9. The doctor found the patient skin redness and pain in the joints, cartilage formed ribs and tenderloin on a chest that formed by two parts. What tenderloin on a chest formed by two of its parts?

- A. Incisura costalis I.
- B. Incisura costalis II.
- C. Incisura costalis III.
- D. Incisura clavicularis.
- E. Incisura jugularis.

10. Female, 40 years, appealed to the neurologist with complaints of pain and limitation of motion in the lumbar spine.

Radiological findings revealed damage to the lumbar-sacral connection. What are the processes of the fifth lumbar vertebra damaged?

- A. The upper articular processes.
- B. The lower articular processes.
- C. The upper and lower articular processes.
- D. The upper articular and transverse processes.
- E. The lower articular and transverse processes.

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