

BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

Department of human anatomy

GUIDELINES

<i>Academic discipline</i>	HUMAN ANATOMY
<i>Module №</i>	1
<i>Content module №</i>	4
<i>The topic of the lesson</i>	Bones of the upper limb
<i>Course</i>	1 st
<i>Number of hours</i>	3

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1. Specific objectives:

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

- 1.1. To determine and to show parts of the upper extremity.
- 1.2. Identify and demonstrate the bones that are in each of the sections of the upper limb.
- 1.3. Describe and display the anatomy of scapula, clavicle, humerus, ulna and radial bones and hand bones.
- 1.4. Define and you belong scapula, clavicle, humerus, ulna and radial bones to the right or left upper extremity.
- 1.5. Describe the main features of the development of upper extremity bones.
- 1.6. To name basic variants and abnormalities of the bones of the upper limb.

2. Basic level of preparation.

Students must know and be able to:

- 2.1. Define the anatomical plane of the body and anatomical terms to indicate the location of the bones of the upper limb on these planes.
- 2.2. Name the stage of bone development.
- 2.3. Classify bones by development.
- 2.4. To name varieties of extinction and to explain the basic features of each of them.
- 2.5. Classify the kernels of extinction by the time of appearance in ontogenesis.
- 2.6. Classify bones due to the shape.
- 2.7. To call and show parts of a long tubular bone.

3. Organization of the content of educational material.

The teaching material is described in logical sequence with the involvement of structural and logical schemes, tables, drawings, which reflect the content of the main issues of the topic of practical classes.

The content of the material.

The upper limb (*membrum superius*) consists of a belt of the upper limb (*cingulum membri superioris*) and a free upper limb (*pars libera membri superioris*). The free upper limb consists of a shoulder (*brachium*), an antebrachium and a hand (*manus*). The hand has palms and palms (*dorsum manus*). The brush consists of the following departments: carpus, metacarpus, fingertips (*digiti manus*). The fingers of the brush are as follows:

Thumb (first finger [I]) - Pollex (*Digitus primus* [I])

Index finger (second finger [II]) - Index (*Digitus secundus* [II])

Middle finger (third finger [III]) - *Digitus medius* (*Digitus tertius* [III])

Ring finger (fourth finger [IV]) - *Digitus anularis* (*Digitus quartus* [IV])

Mystery (fifth finger [V]) - *Digitus minimus* (*Digitus quintus* [V])

Bones of the upper limb (*ossa membri superioris*) are divided into bones of the belt and bone of the free part of the upper limb.

Bones of the upper limb belt (*cingulum membri superioris*) are presented with skin The side of two bones - a shoulder blade and a clavicle attached to the chest with muscles and ligaments, and in the front and the median of the collarbone connecting -

With a sternum with a joint. That's the way Roughing bones of the belt with the bones of the body allows the upper extremity to perform movements in large volumes. The free upper limb skeleton consists of the humerus, elbow and radial bones, the bones of the brush. All bones movably interconnected, especially in areas of the forearm and wrist, providing career man.

Bones of the upper limb belt

Clavicle (clavicula) - is a long S-shaped bend And the bone, which is located between the clavicular nape of the sacrum and the shoulder blade. The clavicle has a circular corpus cluster (corpus claviculae) and two ends: an enlarged thoracic end (extremitas sternalis) and an enlarged flattened ankle (extremitas acromialis). At the thoracic end of the collarbone there is a saddle-shaped thoracic joint surface (facies articularis sternalis) for the connective tissue.

Blade (scapula) - is a flat triangular bone adjacent to the back of the chest at II-VII ribs. The blade has three angles: angulus inferior, angulus lateralis and angulus superior, and three edges: Middle edge (margo medialis), reversed to the spine, lateral edge (margo lateralis), directed to the side and up. Bottom and top edge (margo superior) on which you are Cutting of the shoulder blade (incisura scapulae) for passage of the peritoneal vessels and the nerve.

The front surface of the blade rib forms a concave chuck hole (fossa subscapularis), which begins from the eponymous muscle. The back surface (facies posterior) sticker on it whist The transverse orientation of the shoulder blade (spina scapularis) Above it is seen the abutment hole (fossa supraspinata), which has the same name muscle. At the lateral angle of the shoulder blade there is a noticeable narrowing of the neck of the shoulder blade (collumna scapulae), and on the thickened part of this angle - cavitas glenoidalis, which connects the head of the humerus.

Above the articular hollow is an over-articular tubercle (tuberculum supraglenoidale), from which begins the long head of the two-headed shoulder muscle. Under the articular hollow there is an articular tubercle, from which the long head of the trigeminal muscle of the shoulder begins.

Bones of the free part of the upper limb

The shoulder, radial and elbow bones are typical long tubular bones, so each of them has an average part - a body, or a diaphysis, and the two ends are epiphysis.

The humerus has a body of the humerus (corpus humeri) and two gyrus (the ends) - thickened upper legs, proximal (epiphysis proximalis), distalis (epiphysis distalis). On the upper part is a round head of the humerus (caput humeri), which is separated by a furrow - anatomical neck (collum anatomicum). At the side of the head there is a large tuberculum majus for attachment of the abdominal, tibial and small round muscles, and a small tuberculum minus is located in front of the large one. Between the hills and their crests there is sulcus intertubercularis. On the side of the crest of a large hump, there is a noticeable deltoid hump (tuberositas deltoidea), to which the deltoid muscle attaches.

The tiniest space between the head of the humerus and its body is called the surgical neck (collum chirurgicum), where bone fractures are the most common.

The lower legs of the humerus are enlarged, flattened. On the middle part of the appendix there is a block of the humerus (trochlea humeri), with which the elbow cyst is arranged. Above the block of the humerus in the front part there is a noticeable

coronoid fossa (fossa coronoidea), which involves, when bending the forearm, the coronal growth of the elbow bone. Shoulder over the head The fossa radialis is visible to the droop.

In the back of the appendix of the humerus, there is an elbow fossa (fossa olecrani). Between the elbow fossa and the coronal fossa there is a thin partition, which sometimes has a hole. Above you The growth of the humerus from the medial and lateral sides shows an increase - the median and lateral hypertrophy. On the posterior surface of the median epithelium (epicondylus medialis) passes the sulcus of the ulnar nerve (sulcus nervi ulnaris). The lateral epicondylus lateralis is smaller.

Forearm (antebrachium) includes medially ulna and located on the side of it on - Man bone These bones contact each other only with their ends. Each bone has the body and two epiphysis: the upper (proximal) and lower (distal). The sharp intercostal edge (margo interosseus) of the cervical and radial bones is inversed in the interstitial space. To these edges attaches the intercostal membrane of the forearm.

Ulna (ulna) has a thickened upper (proximal) suffix. The rear edge of the clipping is about Bulky elbow appendix (olecranon). On the front of the cuttings there is the coronary process (processus coronoideus). Under the sinus sprout there is a noticeable roughness of the elbow (tuberositas ulnae), to which the shoulder muscle is attached. Body of the elbow (corpus ulnae; diaphysis) has a triangular shape.

Radial bone (radius) has a head of a radial bone (caput radii) with a hollow - an articular fossa (fovea articularis) for an articulation with a head of a humeral bone. Below the head there is a well-defined neck of the cavity (collum radii). Underneath on the anterior surface of the bone, there is a noticeable roughness of the bone marrow (tuberositas radii), to which the tendons are attached. The body of the radius (corpus radii) has a triangular shape. The bone marrow on the medial surface has a cervix of the elbow (incisura ulnaris) for joining with the head of the elbow bone. On the lower surface of this build-up of the radial bone there is a concave articular carpal surface (facies articularis carpalis) with which the wrists are arranged.

The bones of the hand

The carpal bone (ossa carpalia) consists of 8 short bones, which are arranged in two rows. The bones in the proximal row are: boat-shaped, crescent, triangular and pea-like bones. In the distal row in the same direction there are these bones: bone-trapezium, trapezoidal, head and bone hook.

Scaphoid bone (os scaphoideum) is curved in the proximal direction. The crescent bone (os lunatum) is also curved proximally and concave from the distal surface. The trihedral bone (os triquetrum) contains an articular surface for the joint on the front surface. Horse-bone (os pisiforme) has an incorrect spherical shape.

Proximal surfaces of the boat, crescent, and triangular bones are involved in the formation of the radial-wrist joint, and their distal upper back to the second row of wrist bones.

The bone-trapezium (os trapezium) has a cube-like shape and saddle-shaped articular surface.

Trapezoid bone (os trapezoideum) for Faure My resemblance is the trapezoid bone, but it is smaller in size.

Capitate bone (os capitatum) is the largest of the wrists. Its round head is directed proximally and slightly outward.

The bone marrow forms the bone artery, the concave surface of which is forward and up to The surface of the body forms a furrow's wrist (sulcus carpi), which is limited to the radius side of the tubercle of the boat bone and the hump of the bone-trapezium, and on the elbow side, the crocheted hook bone and peas-like a bone.

Metacarpal bones (ossa metacarpi; ossa metacarpalia) include five (IV) short tubular bones. Each bone consists of the base, the body and the tip of the bone (base, corpus and caput ossis metacarpi). The base and head of the heel bones have proximal and distal ends.

The bones of the fingers - phalanx (ossa digitarum manus - phalanges). Phalanges of the fingers (phalanges digitorum) represent short tubular bones. Each finger, except for the first, has 3 phalanxes: the longest proximal (phalanx proximalis), medium (phalanx media) and shortest end or distal (phalanx distalis). The thumb has only two phalans - proximal and distal. The proximal end of each phalanx is called the base of the phalange, and the distal end is the head of the phalanx (caput phalangis). Between the ends of the phalanx there is the body of the phalanx (corpus phalangis). Proximal and middle phalanges are curved in the rear.

5. Methodology of organization of educational process in practical lesson.

5.1. Preparatory stage.

In order to form the motivation for learning activities focused theme emphasizes the importance of training for further education at our department and other departments of the university and for professional activities of physicians of any specialty.

Students meet specific goals and plan of occupation.

5.2. The main stage

The main stage involves the study at a poster (in drugs, models, drawings, photographs) using textbooks and atlases and under the supervision of the structural features of the upper limb bones.

The study of anatomy blades begins with the definition of surfaces, edges and corners. In the study of the structure of the humerus, ulna and radial bones are determined by their body proximal and distal ends. Then study the structural features of each of these parts. Study of the hand skeleton begins with identifying parts of the hand. Then, each bone of the hand is determined by its place in a hand and examines the main features of the anatomical structure. Attention is drawn to the fact that the wrist bones form the bony arch.

Oral examination is accompanied by a demonstration of anatomical structures and solving situational tasks and tests that brings students to the clinical situation. Responses are discussed with students and teacher.

5.3. Final stage.

- Assesses the current activity and the activity of each student during classes;
- A standardized final control of students' knowledge on control issues;
- Announcement of students' evaluation;
- Group leader fills in assessment roll of the success and attendance of students, teacher assured them with his signature;

- The teacher informs students with content topic for the next session.

6. Applications. Tools for testing:

- practical problems regarding the illustrations in the manual "Human Anatomy. Control over the independent preparation of students for practical training "
- Practical tasks for additional illustrations
- the question base for monitoring students' knowledge
- Initial questions for the students' knowledge
- the question for final control of students' knowledge
- tests of format (STEP 1)

7. Suggested Reading www.anatom.ua

Practical tasks:

1. Practical tasks on illustrations in the manual "Human Anatomy. Control over the independent preparation of students for practical training ":
 - Guide out different color schemes and designs according to the subject class.
2. Practical tasks for additional illustrations

Issues to monitor students' knowledge base

1. Identify the anatomical plane body and anatomical terms to indicate the location of the bones of the upper limb on these planes.
2. Classify the bone shape.
3. What part of the long tubular bones
4. Explain terms: suffix, prefix, grown-up, over grown-up.

Questions to control the final level of training

1. Call and show parts of the upper limbs and bones belonging to each department.
2. Identify specific bones that belong to the shoulder girdle, humerus and to the right or left upper extremity.
3. Describe and show the structure of the blade.
4. Describe and show the structure of the clavicle.
5. Describe and show the structure of the proximal end of the humerus.
6. Describe the structure of the body and show the humerus.
7. Describe and show the structure of the distal end of the humerus.
8. Describe and show the structure of the ulna.
9. Describe and show the structure radius.
10. Name and show the bones of the proximal row carpal bones.
11. Name and show the bones of the distal row carpal bones.