



# PROGRAM REALIZACJI ZAJĘĆ

Schedule for anatomy classes.

## Przedmiot: ANATOMIA PRAWIDŁOWA

Human anatomy

Tematyka ćwiczeń.

Kierunek: LEKARSKI - semestr letni - moduł 4/7

Field of study: Faculty of medicine - spring semester - part 4/7

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### BACK AND UPPER LIMB

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#### LABORATORY CLASSES 1

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Wet lab classes with PBL and SGD (Classes will be conducted at the *Collegium Anatomicum*. Wet preparations.  
Classes implemented using VR, *Anatome* and the „inverted spotters” method).

- Repetition - Skeleton of upper limb - bones and joints

#### I Back

1. Regions of the back: vertebral region, scapular region, infrascapular region, loin or lumbar region, sacral region (coccygeal foveola)
2. Fascia: nuchal fascia, thoracolumbar fascia (anterior, middle and posterior layer)
3. Extrinsic muscles of back
  - Superficial extrinsic muscles of the back (posterior thoracoappendicular muscles)- attachments, innervation, function (detailed information about their influence on the movements of the upper limb joints)
    - Trapezius
    - Latissimus dorsi
    - Levator scapulae
    - Rhomboids muscles: major and minor
  - Intermediate extrinsic muscles of the back (spinocostal muscles)- attachments, innervation, function (influence on the respiratory movements)
    - Serratus posterior muscles
4. Intrinsic (deep) muscles of the back (general information about their attachments, innervation and function)
  - Superficial layer of the intrinsic muscles of the back
    - Splenius capitis
    - Splenius cervicis
  - Intermediate layer of the intrinsic muscles of the back- erector spinae (sacrospinalis) muscle
    - Lateral column - iliocostalis muscle (3 parts- iliocostalis lumborum, thoracis and cervicis)
    - Intermediate column- longissimus muscle (3 parts- longissimus thoracis, cervicis and capitis)
    - Medial column- spinalis muscle (3 parts- spinalis thoracis, cervicis and capitis)
  - Deep layer of the intrinsic muscles of the back (transversospinal muscles)
    - Semispinalis muscle (3 parts- semispinalis thoracis, cervicis and capitis)
    - Multifidus muscle
    - Rotatores muscles
  - Minor deep layer of the intrinsic muscles of the back
    - Interspinales muscles
    - Intertransversarii muscles
    - Levatores costarum muscles
3. Suboccipital muscles (general information about their attachments, innervation and function)
  - Rectus capitis posterior major
  - Rectus capitis posterior minor
  - Rectus capitis lateralis

- Superior oblique of the head
- Inferior oblique of the head
- 4. Suboccipital triangle (boundaries, contents- vertebral artery, suboccipital nerve)
- 5. Superficial muscles of the thorax (anterior thoracoappendicular muscles) and their influence on the movements of the upper limb joints ([review](#))
- 6. Scapulohumeral (intrinsic shoulder) muscles- attachments, innervation, function ([detailed](#) information about their influence on movements of the upper limb joints)
  - Deltoid muscle
  - Rotator cuff muscles
    - Subscapularis muscle
    - Supraspinatus muscle
    - Infraspinatus muscle
    - Teres minor muscle
    - Teres major muscle
- 7. Axilla
  - Boundaries
  - Contents
  - Openings in the posterior wall of axilla- boundaries and contents)

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## LABORATORY CLASSES 2

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Wet lab classes with PBL and SGD (Classes will be conducted at the *Collegium Anatomicum*. Wet preparations. Classes implemented using VR, *Anatome* and the „inverted spotters“ method).

## II Upper limb

1. **Brachial plexus**
  - Roots, trunks, cords (origin and localization of particular parts of the brachial plexus- supraclavicular and infraclavicular parts of the brachial plexus)
  - Short nerves (divisions) of the brachial plexus (origin, course and range of innervation)
    - Divisions of the supraclavicular part of the brachial plexus (nerves: dorsal scapular, long thoracic, nerve to subclavius, suprascapular)
    - Divisions of the infraclavicular part of the brachial plexus (nerves: pectoral medial and lateral, thoracodorsal, subscapular, axillary- detailed information about its course, range of innervation and symptoms of palsy)
  - Long nerves (divisions) of the brachial plexus ([general](#) information about their origin- place of arise from the cords of the brachial plexus)
    - Nerves: musculocutaneous, median, ulnar, radial, medial brachial cutaneous, medial antebrachial cutaneous
    - Muscles of arm- (topographic division- [detailed](#) information about their attachments, innervation and function)
2. Muscles of the anterior compartment of arm
  - Coracobrachialis
  - Biceps brachii
  - Brachialis
3. Muscles of the posterior compartment of arm
  - Triceps brachii
  - Anconeus
4. Brachial fascia and intermuscular septa of the arm
5. Radial groove (canal of the radial nerve)
  - Boundaries (heads of the triceps brachii muscle and body of humerus- radial groove)
  - Contents- radial nerve, deep artery and veins of arm
  - Clinical significance- palsy of the radial nerve (fractures of humerus, "Saturday night palsy")
6. Cubital fossa
  - Boundaries (muscles: brachioradialis, pronator teres, brachialis, supinator, cubital fascia and bicipital aponeurosis)
  - Contents- nerves: radial and median, brachial artery and its division into radial and ulnar arteries, accompanying veins of the arteries, cubital lymph nodes, superficial veins and nerves)
7. Muscles influencing on movements of shoulder and elbow joints
8. Long nerves of the upper limb (within arm and forearm)
9. Musculocutaneous nerve (origin, course, range of innervation, symptoms of palsy)

10. Median nerve (origin, course in the arm)
11. Ulnar nerve (origin, course in the arm)
12. Radial nerve
  - Origin, course in the arm
  - Canal of the radial nerve (radial groove of the body of humerus), „wrist- drop“
  - General range of innervation, symptoms of palsy (like above).
13. Innervation of the skin of arm
14. Subclavian artery
  - Origin and course
  - Branches- vertebral artery, thyrocervical trunk (inferior thyroid artery, ascending cervical artery, suprascapular artery), costocervical trunk (supreme intercostal artery, deep cervical artery), internal thoracic artery
15. Axillary artery
  - branches of the 1st section- superior thoracic artery
  - branches of the 2nd section- lateral thoracic artery, thoracoacromial artery
  - branches of the 3rd section- subscapular artery, posterior and anterior circumflex humeral arteries
16. Arterial anastomoses around scapula
17. Brachial artery (course, branches, range of supply, places of palpation of pulse)
18. Clinical anatomy.
  - Bones fracture and dislocation, dislocation of shoulder, injury of nerves and related structures (e.g. describe the signs and symptoms of a lesion to the: spinal accessory, dorsal scapular, long thoracic, thoracodorsal, axillary, radial and ulnar nerves), upper and lower brachial plexus nerve lesion, supraspinatus tendinitis, functional loss of the deep muscles of the back resulting from nerve lesions to these muscles, triangle of Petit, ligamentous injuries, insertion of a catheter for central venous access (infraclavicular subclavian venipuncture).

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### LABORATORY CLASSES 3

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Wet lab classes with PBL and SGD (Classes will be conducted at the *Collegium Anatomicum*. Wet preparations. Classes implemented using VR, *Anatome* and the „inverted spotters“ method).

1. Muscles of forearm- (general information about their attachments, innervation and function)
  - Muscles of the anterior compartment
    - Superficial layer- pronator teres, flexor carpi radialis, palmaris longus, flexor carpi ulnaris
    - Intermediate layer- flexor digitorum superficialis
    - Deep layer- flexor digitorum profundus, flexor pollicis longus, pronator quadratus
  - Muscles of the posterior compartment
    - Superficial layer- brachioradialis, extensor carpi radialis longus, extensor carpi radialis brevis, extensor digitorum, extensor digiti minimi, extensor carpi ulnaris
    - Deep layer- abductor pollicis longus, extensor pollicis brevis, extensor pollicis longus, extensor indicis, supinator
2. Antebrachial fascia and intermuscular septa of the forearm
3. Radial fovea („anatomical snuff box“)
  - Boundaries (tendons of muscles: abductor pollicis longus, extensor pollicis brevis, extensor pollicis longus, scaphoid and trapezium bones)
  - Contents- superficial branch of radial nerve, radial artery, deep radial veins, superficial cephalic vein)
  - Clinical significance in fractures of carpal bones
4. Muscles influencing on movements of the elbow and wrist joints
5. Long nerves of the upper limb (within arm and forearm)
  - Median nerve
  - Course in the forearm
  - Potential places of compression or injury
    - Presence of Struther's ligament and/or place of passage between the heads of pronator teres- „hand of benediction“
    - Carpal tunnel- „ape hand“
  - Range of innervation, symptoms of palsy (like above)
6. Ulnar nerve
  - Course in the forearm

- Potential places of compression or injury
    - Place of passage behind the medial epicondyle of humerus- „clawhand“
    - Place of passage through Guyon's canal- „clawhand“
  - Range of innervation, symptoms of palsy (like above)
7. Radial nerve
    - Course in the forearm
    - Potential places of compression or injury
      - Canal of the radial nerve (radial groove of the body of humerus)- „wrist- drop“
    - Range of innervation, symptoms of palsy (like above).
  8. Innervation of the skin of the forearm.
  9. Clinical anatomy
    - Muscles acting on the elbow, and muscles acting on the wrist and hand, pulled elbow, posterior dislocation of elbow; bones fractures and injury of the nerves and others related structures; risk during intravenous access of the basilic or cephalic veins in the cubital fossa.

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#### LABORATORY CLASSES 4

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1. Carpal tunnel - boundaries, contents, clinical significance (carpal tunnel syndrom)
2. Tendons and digital sheaths (synovial and fibrous) of extrinsic hand muscles (flexors and extensors)- clinical significance (potential pathways of spreading the inflammatory processes)
3. Fascia of the palm and compartments of the hand
4. Muscles of the hand- general information about attachments, innervation and function
  - Thenar muscles- abductor pollicis brevis, flexor pollicis brevis, opponens pollicis,
  - Adductor pollicis
  - Hypothenar muscles- palmaris brevis, abductor digiti minimi, flexor digiti minimi, opponens digiti minimi
  - Short muscles of the hand- lumbricals, palmar interossei, dorsal interossei muscles
5. Innervation of the hand- nerves: median, ulnar, radial
  - Course and range of innervation within the hand
  - Innervation of the skin of hand
6. General information about segmental innervation of the skin (dermatomes) of the upper limb
7. Clinical symptoms of brachial plexus injury
  - Injury of superior part- Erb- Duchenne palsy (waiter's tip position of hand)
  - Injury of inferior part- Klumpke palsy
8. Arteries of forearm
  - Radial and ulnar arteries: (course, branches, range of supplement, places of palpation of pulse)
9. Arteries of hand
  - Superficial and deep palmar arterial arches and their branches
  - Vasculature of the dorsal part of hand
10. Veins of upper limb
  - Deep veins of the upper limb: deep veins of hand, radial and ulnar veins, brachial veins, axillary vein, subclavian vein
  - Superficial veins of the upper limb: superficial veins of hand, basilic vein, cephalic vein, median antebrachial vein, veins in the region of the cubital fossa
11. Lymphatic system of upper limb
  - Superficial lymphatic vessels and nodes (cubital and deltopectoral lymph nodes)
  - Deep lymphatic vessels and nodes (axillary lymph nodes)
12. Clinical anatomy
  - segmental and regional cutaneous supply of upper limb, cervical rib syndrome, costo-clavicular syndrome, anatomy of upper limb deformities (e.g. brachial plexus injury: "Saturday night palsy", wrist drop, claw hand or "main en griffe", "monkey's hand", Volkmann's contracture (contractura ischemica), Dupuytren's contracture, "trigger finger" (stenosing tenosynovitis). Colle's fracture and Smith fracture, boxer's fracture, mallet finger, swan neck, carpal tunnel syndrome, surface anatomy of upper limb, surface landmarks and location of the pulse, dermatoms, useful surface markings of nerves and vessels (e.g. Henry's method)

2021/2022

## LABORATORY CLASSES 5

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1. Clinical anatomy.
2. Radiological visualization of subclavian, axillary, brachial, antebrachial and hand arteries and veins in angiographic examinations and section of shoulder and arm in NMR examinations.
3. **REVIEW - BACK AND UPPER LIMB**

## CREDIT 4

Credit: BACK AND UPPER LIMB - *SPOTTERS* / *inverted spotters*  
Credit: BACK AND UPPER LIMB- *SCQ* / *MCQ*

MCQ - Multiple Choice Question  
SCQ - Single Choice Question