

schedule of lectures - **e-learning** /20 hours over 2 semesters/

## **1. Musculoskeletal system**

### **a) skeletal system - 1 h**

Musculoskeletal system. Division of the skeletal system. Overview of bone division. Types of connections. Discussion of the components of the skeleton in the structural aspect. Overview of the most important joints with their importance and general structure. Radiological examples of selected anatomical and clinical structures of the skeletal system.

### **b) muscular system - 1 h**

Overview of the human muscular system. Division of muscles due to morphology. The type of muscles in terms of their function. Topographic overview of the main muscle groups. Innervation and vascularization of the muscles. The importance of the fascia in the clinical aspect. Myofascial areas and structures. Selected anatomical and clinical aspects of myofascial structures, e.g. the inguinal and femoral canals, etc..

## **2. Cardiovascular system**

### **a) the arterial vascular system - 1 h**

Aorta - division, branches. Branches of the thoracic and abdominal aorta. Circulation big and small. Vascularization of the upper and lower limbs. Common subclavian and common iliac artery. Common carotid, external and internal carotid artery. Vascularization of the brain. Examples imaging the human arterial system. Selected examples of clinical anatomy concerning human arterial vessels.

### **b) structure of the heart - 1 h**

Heart - location, structure, vascularization. The cardiac conduction system. Coronary circulation. Heart innervation. The importance of the pericardium. Examples of imaging heart structures. Selected anatomical and clinical examples concerning the heart, e.g. myocardial infarction

### **c) lymphatic system - 1 h**

The role of the lymphatic system. The main components of the lymphatic system. Topography of essential lymphatic trunks. The human lymphatic system. The importance of the lymphatic system. Structure and topography of the thoracic duct. The role of lymph vessels in oncology. Selected examples of clinical anatomy of the lymphatic system.

### **d) venous vascular system - 1 h**

Division of the venous system. Main veins, upper and lower. Portal vein. Superficial veins of the upper and lower limbs. Fetal circulation. Examples of human venous system imaging. The specificity of the cerebral venous system. The veins of the cephalocervical region. Selected anatomical and clinical examples of the venous system, e.g. varicose of the lower extremities

### **3. Digestive system**

#### **a) digestive glands - 1 h**

Liver position, structure, ligaments of the liver. Bile roads - structure and division. Pancreas - structure, location and function. Spleen - structure, location and function. Selected anatomical and clinical examples concerning the glands of the digestive system

#### **b) digestive tract - 1 h**

Vestibule and proper oral cavity. Teeth - structure, types of teeth. Oral part of the throat. Esophagus - structure, division. Peritoneum - division, peritoneal cavity. Stomach - structure, vascularization, innervation. Division of the small and large intestines. Intestinal imaging methods. Selected examples of clinical anatomy for the gastrointestinal tract.

### **4. Genito-urinary system**

#### **a) urinary system - 1 h**

Kidney - location, structure. System of draining urine. Renal calyces, smaller and larger, renal pelvis, ureter, urinary bladder - location and structure. Male and female urethra - structure, division. Examples of imaging of the urinary system. Anatomical and clinical cases of the urinary system.

#### **b) female reproductive system - 1 h**

Ovary - location, structure, ligaments. Ovum - location, structure. Uterus - location, ligaments, structure and vascularization. Vagina. Female external genitalia (vulva). Division, construction. Methods of imaging the structures of the female reproductive system. Selected anatomical and clinical cases of the structures of the female reproductive system

#### **c) male reproductive system - 1 h**

Testicle - location, structure, testicular sheaths, scrotum. Epididymis, vas deferens, prostate gland - location, structure. Penis - structure. Methods of imaging the structures of the male reproductive system. Selected anatomical and clinical cases of the structures of the male reproductive system.

### **5. The nervous system**

#### **a) peripheral nervous system - 1 h**

Cranial nerves - division, range of innervation. Spinal nerves. Cervical, brachial, lumbar and sacral plexus - formation, cutaneous branches, short and long, range of innervation, paralysis. Intercostal nerves. Peripheral system imaging methods. Selected anatomical and clinical cases - with their discussion.

#### **b) central nervous system (CNS) - 1 h**

General structure and division of the central nervous system. Structure and division of the brain. Reticular formation. The limbic system. Pyramidal and extrapyramidal paths. The ventricular system of the brain. The brain's meninges. Cerebro-spinal fluid. Structure of the spinal cord. CNS imaging methods. Discussion of selected anatomical and clinical cases.

### **c) autonomic nervous system - 1 h**

Parasympathetic system - cranial and spinal part. Sympathetic trunk - formation, division, ganglion, extent of innervation. The principle of operation of the autonomous system. The role of the autonomic system for the physiology of internal organs. The role of sympathogenic and parasympathogenic bodies. Methods of imaging the autonomic system. Selected anatomical and clinical cases from their overview.

## **6. Endocrine system**

### **a) Endocrine system part 1 - 1 h**

Structure of the thyroid gland. Structure of the parathyroid glands. The structure of the ovaries. Structure of the testicles. The role of the hypothalamus for the endocrine system. Methods of imaging selected hormonal glands. Discussion selected anatomical and clinical cases.

### **b) Endocrine system part 2- 1 h**

Structure and importance of the pituitary gland. Structure of the adrenal gland. The endocrine system of the pancreas. GEP-NEP system. The importance of the pineal gland. Methods of imaging selected hormonal glands. Discussion of selected anatomical and clinical cases.

## **7. Sensory organs**

### **a) structure of the hearing and balance organ - 1 h**

Overview of the structure of the outer, middle and inner ear. Discussion of the auditory and static functions of the inner ear. The auditory path. Vestibular organ. Static part. The main components of the static part. Methods of imaging and examining the ear. Selected anatomical and clinical cases with their discussion.

### **b) structure of the organ of vision - 1 h**

The organ of vision - division, structure. Detailed structure of the eyeball. The nucleus of the eyeball. Methods of examining the organ of sight. Secretory pathway for the lacrimal gland. Overview of the eyeball muscles and their innervation. Optic nerve. Symptomatology of selected disease syndromes with an overview of clinical anatomy.

## **8. Respiratory system**

### **a) structure of the components of the respiratory tract - 1 h**

External nose. Nasal cavity. Posterior nostrils. Nasal and laryngeal parts of the pharynx. Larynx - location, structure, division of the laryngeal cavity. Trachea - location, structure, division. Bronchial tree. Respiratory imaging methods. Discussion of selected anatomical and clinical cases.

### **b) structure of the lung - 1h**

Lungs - structure, vascularization and innervation. The importance of the lung stool. Bronchopulmonary segments. Pleura - structure and division. Lung imaging methods. Discussion of selected anatomical and clinical cases, including topographic relations.