

## PROGRAM OF PRACTICALS 2020/2021 - SUMMER TERM

### III. PHYSIOLOGY OF RESPIRATORY SYSTEM

#### 1. week (15.2.-19.2.2021)

Pulmonary function tests (spirometry, forced expiration) by systems ZAN, SpiroScout, Stollberg)  
Evaluation of forced expiration parameters by personal spirometer

#### 2. week (22.2.-26.2.2021)

*Presentation: 1. Parameters of mechanics of breathing – compliance, resistance, breathing work.  
2. Surfactant – characteristics, composition, function*

Pneumotachography – registration of air flow and tidal volume, evaluation of „flow-volume“ curve (system SpiroScout)

Measurement of peak expiratory flow by personal peak flow meter

Measurement of airway resistance (system ZAN)

Assessment of surfactant quality by capillary surfactometer

Measurement of nasopharyngeal mucociliary transport

#### 3. week (1.3.-5.3.2021)

*Presentation: 1. Mechanisms of transport of O<sub>2</sub> and CO<sub>2</sub>. 2. Acid-base balance - mechanisms.*

Measurement of oxygen saturation of hemoglobin by pulse oxymeter

Determination of oxygen consumption, ventilation equivalent and oxygen utilisation coefficient

Analysis of expired air by capnograph

Determination of PO<sub>2</sub>, PCO<sub>2</sub> and pH in the capillary blood (Astrup's method)

Chemical regulation of breathing

#### 4. week (8.3.-12.3.2021)

*Presentation: 1. Basic physical examinations of the respiratory system*

*2. Sound phenomena in auscultation of the respiratory system*

Study of physiological functions of respiratory system using simulators

Basic investigation of respiratory system

Chest percussion

Auscultation of the lungs

#### 5. week (15.3.-19.3.2021)

*Test: Physiology of the respiratory system*

### IV. PHYSIOLOGY OF GIT, METABOLISM AND NUTRITION

#### 6. week (22.3.-26.3.2021)

*Presentation: 1. Basal metabolic rate – factors, methods, clinical importance.*

*2. Regulation of glycemia*

Demonstration of ptyalin effect in saliva

Measurement of swallowing time

Measurement of glycaemia by glucometer

Calculation of basal metabolic rate by Douglas method

Basic anthropometric measurements

Evaluation of the body composition using objective measurement (system InBody)

#### 7. -8. week (29.3.-9.4.2021)

*Test: Physiology of the gastrointestinal system, metabolism and nutrition*

## **V. PHYSIOLOGY OF EXCRETION.**

## **VI. PHYSIOLOGY OF SENSES AND NERVOUS SYSTEM. PHYSIOLOGY OF MUSCLES**

### **9. week (12.4.-16.4.2021)**

*Presentation: 1. Glomerular filtration and its regulation.*

*2. Excitation-contraction processes in skeletal muscle.*

Renal function tests

Investigation of urine by diagnostic test strips

Measurement of skeletal muscle strength using dynamometer

### **10. week (19.4.-23.4.2021)**

*Presentation: 1. Mydriasis, miosis – mechanisms, clinical importance.*

Ophthalmoscopy

Pupillary reaction to light exposure and accommodation

Photostress test

Examination of field of vision by perimeter

Mariott's trial (evidence of blind spot)

Contrasts in colour vision

Colour mixing

### **11. week (26.4.-30.4.2021)**

*Presentation: 1. Function of the inner ear, acoustic pathways; age-related changes of hearing.*

*2. Skin receptors and their functions.*

Otoscopy

Examination of hearing by tuning forks (Rinne's, Weber's, Schwabach's tests)

Anterior rhinoscopy

Evaluation of smell perception

Evaluation of taste perception

Investigation of skin sensitivity

Space perception by tactile sense and stereognosis

### **12. week (3.5.-7.5.2021)**

*Presentation: 1. Pyramidal and extrapyramidal systems. 2. Memory, learning.*

Examination of some somatic reflexes in humans

Examination of cerebellum

Test of laterality (test of dominance of brain hemispheres)

Testing of short-term memory, testing of learning abilities

(computer program, other methods)

Measurement of electrodermal activity by GSR psychometer

Psychometric tests

Measurement of reaction time (psychomotoric rate)

### **13. week (10.5.-14.5.2021)**

*Test: Physiology of senses and nervous system; physiology of muscles.*

### **14. week (17.5.-21.5.2021)**

Substitution of missing practicals and tests