

PRACTICAL SESSIONS 2020/2021 – Winter term:

I. PHYSIOLOGY OF BLOOD

1st Week (September 14-18, 2020)

Organization of practical sessions – technical and safety instructions

Methods of blood taking in men

Measurement of hematocrit value by microhematocrit set

2nd Week (September 21-25, 2020)

Seminars: Erythrocytes (size and shape deviations from standard).

Hemoglobin (types and derivatives).

Sedimentation rate of erythrocytes and its changes.

The red blood cell count

Automatic evaluation of hematological parameters by hematology analyser

Calculation of MCV, MCH, MCHC

Measurement of erythrocyte sedimentation rate (classical and accelerated method)

Hemolysis

3rd Week (September 28 – October 2, 2020)

Seminars: Initiation of haemocoagulation - relation to haemostasis tests.

Inhibition of coagulation.

Blood groups and Rhesus factor; incompatibility.

Determination of coagulation time

Determination of bleeding time

Measurement of prothrombin time - Quick's method

Recalcification time (Howell's test)

Determination of blood groups and Rh factor

4th Week (October 5-9, 2020)

Seminars: Regulation and factors affecting erythropoiesis.

Leukocytes - count and its measurement in practice.

Granules in granulocytes – importance.

The reticulocyte count

The white blood cell count

Differential white blood cell count

5th-6th Weeks (October 12-16 and October 19-23, 2020, anatomical dissections)

TEST: Physiology of Blood

II. PHYSIOLOGY OF CARDIOVASCULAR SYSTEM

7th-8th Weeks (October 26-30 and November 2-6, 2020)

Seminars: Basic characteristics of ECG – principle, interpretation of the curve, leads system.

Determination of electric axis of the heart - instructions and meaning.

Influence of external factors on cardiac cycle in fish (the effect of temperature, Stannius ligatures, electrical stimulation of the heart, the effect of changes in the ionic composition (calcium and potassium lack) on the rhythm and output of the heart (video)

Electrocardiography (ECG) - evaluation of physiological ECG curve

9th Week (November 9-13, 2020)

Seminar: Neural control of heart rate. Respiratory sinus arrhythmia - mechanisms of origin..

High pressure baroreceptors and their significance.

Evaluation of the heart rate and pulse by palpation method

Monitoring and registration of instantaneous heart rate (systems VariaPulse and VarCor)

Evaluation of respiratory sinus arrhythmia by deep breathing test and heart rate variability (systems VariaPulse/VarCor)

Measurement of blood velocity by ultrasound

10th Week (November 16-20, 2020)

Seminar: Valsalva maneuver - influence on arterial pressure and heart rate.

Orthostasis - changes in the cardiovascular system.

Changes in heart rate during exercise –mechanisms.

Oculocardiac reflex (Ashner's reflex)

Effect of posture change on cardiovascular system - orthostatic and clinostatic reflexes

Effect of an exercise on heart rate

Effect of increased intrathoracic pressure (Valsalva's manoeuvre) on heart rate - Flack's test

Orthostatic test and Valsalva's manoeuvre - evaluation by VariaPulse/VarCor systems

11th Week (November 23-27, 2020)

Seminar: Methods of blood pressure measurement.

Circadian changes in blood pressure - mechanisms, measurement.

Origin of heart sounds.

Measurement of blood pressure by auscultation method and other methods

Long-term monitoring of blood pressure by Holter's method

Continuous monitoring of peripheral blood pressure (computer system Finometer)

Effect of exercise on blood pressure

Blood pressure changes in "cold stress" test

12th Week (November 30- December 4, 2020)

Practical training in Simulation centre of JFM CU (Novomeskeho 7a)

Determination of the heart borderlines by percussion

Auscultation of the heart - heart sounds

Computer programs (+ computer program SimHeart) and patient simulators (heart sounds, ECG)

13th Week (December 7-11, 2020)

TEST: Physiology of Cardiovascular System

14th Week (December 14-18, 2020)

Substitution of missing credit tests and practicals