1. Календарно-тематический план лекций по нормальной физиологии для второго курса на весенний семестр 2024-2025года. Специальность «Лечебное дело» на английском языке.

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| **№ п/п** | **Дата проведения лекции** | **Тема лекции** | **лектор** | | |
| **ФИО** | **ученая степень** | **звание** |
| 1 | 12.02.25 | The concept of blood, its properties and functions. General characteristics of blood cells and their role in the body. Hemopoiesis, mechanism and regulation of the formation of blood elements. Functions of different types of leukocytes. Immunity, its role for the body, immune defense. Types of immunity. Components of cellular and humoral immunity. | Улитина О.М. | к.б.н. | доцент |
| 2 | 19.02.25 | Erythrocytes, their function. Types of hemoglobin, its compounds, their physiological significance. The concept of blood group systems. The system AB0, the system of Rh factor. Physiological basis of blood transfusion. | Улитина О.М. | к.б.н. | доцент |
| 3 | 26.02.25 | The concept of hemostasis. Types of hemostasis. The process of blood clotting, its phases. Plasma and platelet coagulation factors.  Anticoagulant factors. Fibrinolytic system of blood. | Улитина О.М. | к.б.н. | доцент |
| 4 | 05.03.25 | External breathing. Airways. Interaction of the lungs and chest. Pressure in the pleural cavity. Biomechanics of quiet and forced inhalation and exhalation. Pulmonary volumes (TV, IRV, ERV, VC, TLC, VDS, RV). Functional parameters of lung ventilation (RR, RVM, MBC, BR, CAV, OUQ, FEV1, "flow-volume" curve). | Улитина О.М. | к.б.н. | доцент |
| 5 | 02.04.25 | Gas exchange in the lungs and tissues, its determinants. The partial pressure of gases (O2, CO2) in the alveolar air, the pressure of gases in the blood and tissue fluid. The main indicators of gas exchange, their evaluation. Transport O2 by blood, the patterns of formation and dissociation of oxyhemoglobin. The dissociation curve of oxyhemoglobin, Transport of CO2 by blood, the patterns of formation and dissociation of transport forms of CO2. Regulation of respiration. Levels of regulation. Respiratory center. Its structure and localization. Mechanisms for adjusting external respiration in accordance with the needs of the body. | Улитина О.М. | к.б.н. | доцент |
| 6 | 09.04.25 | Homeostatic functions of the kidneys. Excretory function of the kidneys. The mechanisms of primary urine formation. Formation of final (secondary) urine. Characterization of processes of tubular reabsorption. Countercurrent multiplication system. Processes of secretion, the mechanism of secretion. Regulation of kidney function. The role of kidneys in the regulation of BP. Nervous and humoral regulation of kidney function. Water balance of the body, factors of maintaining the water balance. | Улитина О.М. | к.б.н. | доцент |
| 7 | 16.04.25 | Physiological properties of the heart muscle. Excitability of the heart muscle, its characteristic. Action potential of cardiomyocytes. Reaction of the heart muscle to additional stimulation. Extrasystoles: ventricular, atrial. The contractility of the heart muscle, its characteristics. Phases of the cardiac cycle. Evaluation of the injection (pumping) function of the heart. | Улитина О.М. | к.б.н. | доцент |
| 8 | 23.04.25 | Mechanical manifestations of cardiac activity. Arterial and venous pulse, their origin, basic characteristics. Sphygmography, phlebography, their functional capabilities. Sound manifestations of cardiac activity. The origin of heart tones, their characteristics. Phonocardiography, its functional capabilities. | Улитина О.М. | к.б.н. | доцент |
| 9 | 30.04.25 | Electrical manifestations of cardiac activity. Physiological basis of electrocardiography. Evaluation of the automaticity, excitability and conduction of the cardiac muscle by ECG. Holter (daily) ECG monitoring. | Улитина О.М. | к.б.н. | доцент |
| 10 | 07.05.25 | Functional classification of blood vessels. Systemic hemodynamics, its determinants. The basic laws of hydrodynamics. Characteristics of the main indicators of hemodynamics (systemic blood pressure, general resistance, cardiac output, venous return, CVP, volume of circulating blood). Blood pressure. Arterial pressure. Factors that determine the value of blood pressure. Microcirculation. The mechanism of the exchange of fluid and various substances between blood and tissues. | Улитина О.М. | к.б.н. | доцент |
| 11 | 07.05.25 | Vascular tone, its types. Basal tone, its characteristics, local humoral regulation of basal tone. Neurogenic tone. Regulation of systemic hemodynamics. A monitoring system for blood pressure and volume of circulating blood. System of homeostasis of blood pressure and volume of circulating blood. Regulation of the heart. Self-regulation, nervous and humoral regulation of the heart. Cardiac reflexes. | Улитина О.М. | к.б.н. | доцент |
| 12 | 14.05.25 | Digestion and its importance. Functions of the digestive tract. Methods of studying digestion.  Digestion in the different parts of GIT. Cavitary and membrane hydrolysis of nutrients. Characteristics of parietal digestion. Types of motility of the digestive tract. Work of sphincters of the digestive tract. Absorption of substances in various parts of the digestive tract. Types and mechanisms of absorptionof substances through biological membranes. Principles of the regulation of the digestive system. The role of reflex, humoral and local regulatory mechanisms. | Улитина О.М. | к.б.н. | доцент |
| 13 | 14.05.25 | Metabolism, factors determining the intensity of metabolism. Types of metabolism. The basal metabolism, its characteristics. Working metabolism. Methods for measuring and evaluating metabolism. Direct and indirect calorimetry. Heat exchange. Heat production and heat loss. Body temperature. The constancy of the temperature of the internal environment of the organism, the concept of a "homoiothermal core" and "poikilothermic shell". Thermoregulation, the main mechanisms of thermoregulation. | Улитина О.М. | к.б.н. | доцент |
| 14 | 21.05.25 | Conditioned reflexes, the difference between conditioned and unconditioned reflexes. Classification of conditioned reflexes. Periods and mechanism of formation of the conditioned reflex. Dynamic stereotype, its properties. Cortical inhibition, its types, their characteristics. Physiological mechanisms of sleep. Phases of sleep, their classification and characteristics. I and II signal systems. Types of higher nervous activity. | Улитина О.М. | к.б.н. | доцент |
| 15 | 21.05.25 | Needs and motivations. Motivation and their biological significance in the formation of purposeful human activity. The mechanism of the formation of homeostatic motivations. Emotions. Theories of emotions, mechanisms of the formation of emotions. Fundamental emotions, their characteristics. Memory. Classification of acquired memory. Types of memory, their characteristics. Theories of long-term memory. Functional system of behavioral act. Central architectonics of the functional system of the behavioral act, its main elements, their interaction and significance in the formation of a holistic behavioral response. | Улитина О.М. | к.б.н. | доцент |

Тематический план практических занятий по физиологии для второго курса.

Специальность «Лечебное дело» на 2024-2025 год на английском языке. Весенний семестр.

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| №  п/п | Дата проведения | Тема занятия | Продолжительность занятия (ч) |
| 1 | 14.02.25 | Internal environment, homeostasis. The main water compartments of the body, the role of water in the human body. Blood functions. Hematocrit. Hemolysis. Blood plasma, its chemical composition. Plasma proteins and their functions. Blood cells, their functions. Blood groups and Rh factor. Primary hemostasis. Secondary hemostasis: external and internal activation systems. Anticoagulant system of blood. Proteins-blockers of coagulation stages. Plasmin system. Fibrinolysis. Blood coagulation disorders and prevention. | 4 |
| 2 | 21.02.25 | Test on the topic: "Blood Physiology" | 4 |
| 3 | 28.02.25 | External respiration, evaluation of external respiration functions. Gas exchange. | 4 |
| 4 | 07.03.25 | Regulation of respiration. Breathing in unusual conditions. Pathological types of breathing. Regulation of acid-base balance with the respiratory system. | 4 |
| 5 | 04.04.25 | Test on the topic: "Physiology of Respiration". | 4 |
| 6 | 11.04.25 | Test on the topic: "Physiology of the Excretory System". | 4 |
| 7 | 18.04.25 | Physiology of the heart. Pumping function of the heart. Regulation of the pumping function of the heart. ECG and PCG. Systemic and local mechanisms of regulation of cardiac activity | 4 |
| 8 | 25.04.25 | Physiology of blood and lymphatic vessels. SFG.  Regulation of arterial pressure | 4 |
| 9 | 16.05.25 | Test on the topic: "Physiology of the cardiovascular system." | 4 |
| 10 | 23.05.25 | Methods of determining energy expenditure. Physiological principles of nutrition.  Energy balance. Thermal balance. Regulation of body temperature. | 4 |
| 11 | 30.05.25 | Test on the topic: "Digestion. Metabolism. Thermoregulation" | 4 |