



Study program: Integrated Academic Studies in Pharmacy
Course title: Pathophysiology
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Course status: compulsory
ECTS Credits: 4
Condition: General Biochemistry; Physiology
<p>Course aim Studying of the properties of particular etiological factors, their interactions with particular structures of the organism and how they lead to the initiation of the pathological process. Studying the pathogenesis of the processes at the level of molecules, subcellular structures and cells; the onset of humoral and tissue functional disorders, as well as functional disorders of different organs and organ systems, with the aim of successful transition from preclinical to clinical disciplines. Introduction to the basic principles of functional testing used in the diagnostic procedure and monitoring the effects of applied therapy.</p>
<p>Expected outcome of the course: Knowedge: Training students to identify the causative agents of the disease, understanding the mechanisms of the onset of impaired function in the diseased organ and organ system, how to respond and adapt the diseased organism and pathophysiological disorders leading to appropriate clinical manifestations of the disease. Skills: Student should be introduced with basic principles for performing functional investigations and the way of their performance in different pathophysiological alterations.</p>
<p>Course description <i>Theoretical education</i> Etiological factors in diseases. Etiology and pathogenesis of the disease. Inflammation. Fever. Disorders of barriers and phagocyte functions. Immune response disorders as an etiological factor of the disease. Heritage as an etiological factor of disease. Lifetime as an etiological factor of disease. Chemical etiological factors. Malignant neoplasia as an etiological factor of the disease. Eating disorders as an etiological factor of the disease. Vitamin metabolism disorders. The role of enzymes in the etiopathogenesis of the disease and clinical diagnosis. Protein metabolism disorders. Serum protein metabolism disorders. Disorders of other proteins. Disorders of heteroprotein metabolism. Disorders of carbohydrate metabolism. Disorders of lipid metabolism. Disorders of body fluid metabolism. Isoionia disorders. Disorders of acid-base balance. Physical etiological factors. Effects of cold. Effect of heat. The effect of changes in atmospheric pressure. Mechanical factors. The effect of electric current and electromagnetic waves. The effect of radiation. Pathophysiology of the cardiovascular system. Heart failure. Heart defects. Heart rhythm disorders. Myocardial diseases. Pulmonary blood disorders. Systemic blood flow disorders. Disorders of regional and peripheral circulation. Pathophysiology of the respiratory system. Pulmonary ventilation disorders. Diffusion disorders. Perfusion disorders. Respiratory failure. Pathophysiology of tissue hypoxia. Pathophysiology of the digestive tract. General motor and passage disorders in the digestive tract. Secretory function disorders. Absorption disorders. Liver pathophysiology. Liver failure. Pathophysiology of gallbladder and biliary tract dysfunction. Pathophysiology of the kidney. Urinary syndrome. Acute kidney failure. Chronic kidney failure. Glomerular kidney disease.</p>

Tubulointerstitial kidney disease. Renal hypertension. Nephrolithiasis.
 Pathophysiology of the neuroendocrine system. Disorders of nervous and humoral regulation. Hypothalamus and pituitary disorders. Thyroid disorders. Calcium homeostasis, calcitropic mediators and bone metabolism. Adrenal disorders. Gonadal function disorders.
 Pathophysiology of the blood. Pathophysiology of the red blood cells. Pathophysiology of white blood cells. Pathophysiology of the hemostatic system.
 Pathophysiology of the locomotor system. Pathophysiology of muscles and joints. Degenerative diseases. Pathophysiology of connective tissue.
 Pathophysiology of the nervous system. Disorders of motor and sensory functions. Somatosensory system disorders.
 Pathophysiology of pain. Disorders of the cerebral circulation. Epilepsy. Disorders of consciousness.

Literature

Compulsory

1. McCance KL, Huether SE. Pathophysiology: The Biologic Basis for Disease in Adults and Children, 8th Edition. Edinburg: Elsevier; 2018.
2. Hammer GH, Mc Phee JS. Pathophysiology of disease. An Introduction to Clinical Medicine, 7th ed. New York: McGraw-Hill Education; 2014.

Additional

1. Đerić M, ed. Practical Handbook of Pathophysiology. [CD-ROM] Novi Sad: Faculty of Medicine; 2019.
2. Norris TL, Lalchandani R. Porth's Pathophysiology: Concepts of Altered Health States. Tenth Edition. Philadelphia: Wolters Kluwer; 2019.

Number of active classes	Theoretical classes: 60	Practical classes: -
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Teaching methods

Interactive theoretical and practical education, Consultation, Seminars, Pre Test Consultation.

Student activity assessment (maximally 100 points)

Pre-exam activities	points	Final exam	points
Lectures	10	Written	
Practices		Oral	60
Colloquium	20	
Essay	10		