



Faculty of Medicine

Department III: Functional Sciences

University Department Sub-Structure of Physiology

Associate Professor, Position 15

Topics

1. Physiology of the cell membrane
2. Blood volume. Properties and functions of blood. Hematopoiesis. Substances required for erythropoiesis. Regulation of erythropoiesis.
3. Physiology of the erythrocyte. The role of erythrocytes in oxygen, carbon dioxide homeostasis, and acid-base balance. Physiological hemolysis.
4. Physiology of the leukocyte series. Functions of granulocytes. The monocyte-macrophage system. The role of lymphocytes in body defense.
5. Physiology of platelets. Primary and secondary hemostasis. Blood coagulation factors. Mechanisms of blood coagulation. Fibrinolysis.
6. Secretory function of the digestive tract
7. Motor function of the digestive tract
8. Physiology of the liver
9. Organization of the cardiovascular system. Functional structure of the heart. Functional organization of the myocardial fiber. Cardiac bioelectric potentials.
10. Physiology of the nodal system. Cardiac automatism.
11. Excitability of the myocardium. Conductive function of the myocardium.
12. The cardiac cycle. Ventricular systole and diastole. Correlations between mechanical and electrical phenomena during the cardiac cycle.
13. Physiology of circulation. Hemodynamic parameters. Physiology of transcapillary exchanges.
14. Cardiovascular regulatory mechanisms. Autoregulation and neuro-humoral regulation of circulation.
15. Physiology of pulmonary ventilation
16. Regulation of respiration
17. Glomerular filtration
18. Functions of renal tubules: reabsorption and secretion processes
19. Renal control of hydroelectrolytic and acid-base balance
20. Endocrine hypothalamus
21. Physiology of the pituitary gland
22. Physiology of thyroid hormones
23. Adrenal hormones
24. Physiology of hormones involved in phosphate-calcium balance
25. Physiology of the neuron. Resting and action potential of the neuron. Excitability and conductive function of the neuron.
26. Physiology of the synapse. Regulatory and control systems of body functions – feedback mechanisms. Elementary reflex activity.
27. Physiology of the striated muscle fiber. Physiology of skeletal striated muscle.
28. Physiology of the somatosensory nervous system
29. Physiology of the somato-motor nervous system
30. Physiology of the cerebral cortex

Bibliography

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2. Bunu C, *Physiology of Cardiovascular and Respiratory System*, Ed. Mirton, 2006



3. Guyton AC, Hall JE, W.B. Saunder , *Medical Physiology*, 13th ed., Elsevier, 2016
4. Berne RM, Levy MN, *Physiology*, Elsevier, 7th ed., 2017
5. KE Barrett, SM Barman, HL Brooks, J. Yuan, *Ganong's Review of Medical Physiology*, 26th ed., McGraw-Hill Education, 2019
6. C. Panaitescu, C. Tatu, D. Nistor, G. Tănăsie, M. Cotarcă, E. Ciurariu, L. Marusciac, S. Groza, M. Georgescu, L. Cernescu, C. Calma, A. Gherbon, *Fiziologie umană, Lucrări practice: Fiziologie generală, digestiv, sânge, renal*, Editura Eurostampa, Timișoara, 2017, ISBN: 978-606-32-0355-8
7. C. Panaitescu, D. Nistor, G. Tanasie, C. Tatu, L. Marusciac, D. Plesca, L. Gotia, A. Gherbon, L. Cernescu, S. Groza, E. Ciurariu, M. Cotarca, M. Georgescu, P. Tamaș, C. Calma, D. Crîsnic, O. Harich, *Fiziologie umana - lucrari practice – cardiovascular, respirator, endocrin, sistem nervos*, Editura Eurostampa, Timisoara, 2017
8. Paunescu V, Bunu C et al., *Physiology. Experiments and Demonstrations.*, Ed. Orizonturi Universitare, 2002