


1. Subject of physiology and classification of physiological disciplines.
2. Relation of physiology with other sciences.
3. Value of a normal physiology course for medicine.
4. Notion of excitability.
5. Excitability indicators.
6. Law of the power relations.
7. Law "everything or nothing".
8. Membrane potential, its origin and properties
9. Action potential, its origin and properties
10. Local respond and its characteristic
11. Curve of excitability and origin of itsphases
12. Effect of a direct current on tissue
13. Concept about a motor and neuromotor unit.
14. Physiological properties of muscles.
15. Irritation of muscles and ways of registration.
16. Single muscular contraction.
17. Change muscle fiber excitability at its reduction.
18. Summation and tetanus. Optimum and pessimum of muscular contraction.
19. Modern theory of muscular contraction and relaxation.
20. Force and muscle work.
21. Exhaustion of the isolated muscle and exhaustion in the whole organism.
22. Adaptation and trophic influence of sympathetic nervous system on skeletal muscles.
23. Heat generation at excitement and contraction of muscles.
24. Physiological features of smooth muscles.
25. Differences of the smooth musclefrom theskeletal muscle.
26. Classification of nervous fibers.
27. Distribution of excitement on myelin and non-myelin nervous fibers.
28. Laws of excitement conduction on nervous fibers.
29. Synapse. Structure, classification. Excitement transfer mechanism.
30. Concept of the central nervous system. Definition of a reflex.
31. Structure of a reflex arch.
32. The neuron is a structurally functional unit of CNS'.
33. Features of excitement emergence in neuron.
34. Mechanisms of excitement emergence in receptors.
35. Definition and types of inhibition in CNS'.
36. Postsynaptic inhibition.
37. Presynaptic inhibition.
38. Sechenov Central inhibition.
39. Simple inhibition chains.
40. Spinal cord. Conduction and reflex functions.
41. Functions of ventral and dorsal roots of a spinal cord.

Questions for credit

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42. Segmental and intersegmental principle of a spinal cord.
43. Spinal shock.
44. Medulla. Bulbar animal.
45. Conduction function of a medulla oblongata.
46. Reflex function of a medulla oblongata.
47. Tonic reflexes of the brainstem.
48. Reticular formation of the brainstem.
49. Midbrain. Conduction function of midbrain.
50. Reflex activity of midbrain.
51. Cerebellum and its function.
52. Hypothalamus. Hypothalamus participation in the regulation of autonomic functions.
53. Thalamus. Functional characteristics of major nuclear groups.
54. Comparative characteristics of the sympathetic and parasympathetic divisions of the autonomic nervous system. The synergic and antagonism of their relative influence.
55. Definition of the analyzer according to I.P. Pavlov. Functions of the analyzer.
56. Visual analyzer
- a) Receptor apparatus. Photochemical processes in a retina
- b) Conduction part of the visual analyzer
- c) Cortical representation of the visual analyzer
- d) Accommodation. Visual field. Visual acuity
57. Acoustic analyzer. Structure. Functions.
58. Vestibular analyzer. Structure. Functions.
59. Somatosensory analyzer
60. Taste analyzer
61. Olfactory analyzer
62. Concept of reflex. Classification of reflexes.
63. Rules of development of conditioned reflexes.
64. The scheme and mechanisms of short circuit of temporary communications at development of conditioned reflexes
65. Types of higher nervous activity. The doctrine about the first and second alarm systems.
66. Inhibition in HNA.
67. Concept of dominant (A.A. Ukhtomsky).
68. Memory. Types and mechanisms of memory.
69. Emotions. Emotional tension.
70. Sleep. Sleep phases.
71. Dynamic stereotype.

Head of the Department  
of Physiology and Pathophysiology, professor

*Strees*

T.P. Gening

## Recommended literature list

### principal literature

1 Gening T.P., Abakumova T.V., Mikhailova, Kadyshcheva E.N. Normal physiology. Part I.

Physiology of excitable tissues, muscles, CNS, analyzers, HNA. Second Edition Ulyanovsk State

University. 2018 104 p. URL: <http://10.2.96.134/Text/Gening2018-1.pdf>

2 Gening T.P., Abakumova T.V., Mikhailova, Kadyshcheva E.N. Normal physiology. Part II.

Physiology of Cardio-vascular system, Breath, Digestion, Excretion, Endocrine glands,

Metabolism and Energy, Blood. Second Edition Ulyanovsk State University. 2018 135 p.

URL: <http://10.2.96.134/Text/Gening2018-2.pdf>

### additional literature

1. Cardiac Biomechanics in Normal Physiology and Disease/Encyclopedia of Cardiovascular

Research and Medicine2018, Pages 411-419

URL: <https://www.sciencedirect.com/science/article/pii/B9780128096574110592>

2. Anatomy & Physiology: Current Research - OMICS International

URL: <https://www.omicsonline.org/anatomy-physiology.php>

### educational literature

1. Workshop on normal physiology: methodological guidance for students of medical faculty. /

T.P.Gening, T.V.Abakumova, S.O.Gening. – Ulyanovsk: UISU, 2019. – 35 p.

### Professed data base, directory and search systems:

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The electronic library system IPRBooks

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