

## Materials for the Pharmacology Exam, Semester 5, for Third-Year Students, Academic Year 2024-2025

### General Pharmacology

1. Determine pharmacokinetic parameters.
2. Determine the characteristics of the sublingual route of administration.
3. Determine the advantages of the sublingual route of administration.
4. Determine the characteristics of the rectal route of administration.
5. Determine the advantages of the rectal route of administration.
6. Determine the mechanisms of drug absorption.
7. Determine the characteristics of drug absorption depending on the pH of the medium.
8. Determine the mechanisms of drug penetration through membranes and barriers.
9. Determine the characteristics of passive diffusion of drugs.
10. Determine the characteristics of facilitated diffusion of drugs.
11. Determine the characteristics of active transport of drugs.
12. Determine the role of pinocytosis as a drug transport mechanism.
13. Determine the mechanisms of drug transport across the blood-brain barrier.
14. Determine the mechanisms of drug transport through mammary gland epithelium.
15. Determine the mechanisms of drug transport across the placenta from mother to fetus.
16. Determine the characteristics of the free fraction of drugs.
17. Determine the characteristics of the bound fraction of drugs.
18. Determine the characteristics of the volume of drug distribution.
19. Determine the pathways of Phase I drug biotransformation.
20. Determine the pathways of Phase II drug biotransformation.
21. Determine the most important cytochrome P-450 isoenzymes involved in drug metabolism.
22. Determine the drugs that induce hepatic microsomal enzymes.
23. Determine the drugs that suppress hepatic microsomal enzymes.
24. Determine the consequences of hepatic microsomal enzyme induction.
25. Determine the consequences of hepatic microsomal enzyme suppression.
26. Determine the types of drug metabolizers.
27. Determine the factors influencing renal drug elimination.
28. Determine the mechanisms of renal drug elimination.
29. Determine the characteristics of renal drug elimination depending on the pH of the medium.
30. Determine the concept of drug half-life.
31. Determine the concept of drug clearance.
32. Determine the parameters of pharmacodynamic action.
33. Determine the concept of the primary action of drugs.
34. Determine the concept of pharmacodynamic action of drugs.
35. Determine the concept of the overall pharmacological effect of drugs.
36. Determine the typical mechanisms of drug action.
37. Determine the phenomena associated with the combined administration of drugs.
38. Determine the phenomena associated with repeated drug administration.
39. Determine the phenomena associated with abrupt drug withdrawal.
40. Determine the safety parameters of drugs.
41. Determine the genetic polymorphism of enzymes affecting drug pharmacokinetics.
42. Determine the genetic polymorphism of enzymes affecting drug pharmacodynamics.
43. Determine the genetic polymorphism of enzymes involved in Phase II metabolism.
44. Determine the adverse drug effects during pregnancy.
45. Determine the categories of drugs absolutely contraindicated in pregnancy.

46. Determine the causes of drug tolerance development.
47. Determine the types of drug antagonism.
48. Determine the phenomena of drug dependence.
49. Determine the definition of the therapeutic index.
50. Determine the definition of the therapeutic range.

### **Vegetotropic Drugs**

1. Determine the M-N-cholinomimetics with direct action.
2. Determine the anticholinesterases with moderately reversible action.
3. Determine the anticholinesterases with irreversible action.
4. Determine the M-cholinomimetics.
5. Determine the effects of M-cholinomimetics on the eye.
6. Determine the mechanism of miosis upon administration of M-cholinomimetics.
7. Determine the mechanism of M-cholinomimetics on vision accommodation.
8. Determine the effects of M-cholinomimetics on the digestive tract.
9. Determine the effect of M-cholinomimetics on the heart.
10. Determine the effect of M-cholinomimetics on the bronchi.
11. Determine the effect of M-cholinomimetics on the urinary system.
12. Determine the effect of M-cholinomimetics on exocrine glands.
13. Determine the symptoms of M-cholinomimetic intoxication.
14. Determine the group of drugs used in M-cholinomimetic intoxication.
15. Determine the symptoms of organophosphate compound intoxication.
16. Determine the phases of organophosphate compound intoxication.
17. Determine the drugs used in organophosphate compound intoxication.
18. Determine the indication/indications of M-cholinomimetics.
19. Determine the indications of anticholinesterases.
20. Determine the characteristics of the phases of N-cholinomimetic action.
21. Determine the M-cholinoblockers.
22. Determine the effects of M-cholinoblockers on the eye.
23. Determine the mechanism of mydriasis upon administration of M-cholinoblockers.
24. Determine the mechanisms of M-cholinoblockers on vision accommodation.
25. Determine the effects of M-cholinoblockers on the digestive tract.
26. Determine the effect of M-cholinoblockers on the bronchi.
27. Determine the effect of M-cholinoblockers on the heart.
28. Determine the effect/effects of M-cholinoblockers on the urinary system.
29. Determine the effect of M-cholinoblockers on exocrine glands.
30. Determine the symptoms of M-cholinoblocker intoxication.
31. Determine the group of drugs used in M-cholinoblocker intoxication.
32. Determine the indications of M-cholinoblockers.
33. Determine the ganglioblocker with short duration of action.
34. Determine the ganglioblocker with medium duration of action.
35. Determine the indication/indications of ganglioblockers.
36. Determine the adverse reaction/reactions of ganglioblockers.
37. Determine the non-depolarizing muscle relaxant.
38. Determine the depolarizing muscle relaxant.
39. Determine the mechanism of action of non-depolarizing muscle relaxants.
40. Determine the mechanism of action of depolarizing muscle relaxants.
41. Determine the indications of muscle relaxants.
42. Determine the group of drugs for decurarization of non-depolarizing muscle relaxants.
43. Determine the principle of decurarization of depolarizing muscle relaxants.
44. Determine the alpha-beta-adrenomimetics.

45. Determine the alpha-2-adrenomimetics with peripheral action.
46. Determine the beta-2-adrenomimetics.
47. Determine the beta-1-adrenomimetic.
48. Determine the non-selective beta-adrenomimetic.
49. Determine the alpha-1-adrenomimetics.
50. Determine the alpha-2-adrenomimetic with central action.
51. Determine the adrenomimetics that promote mediator release.
52. Determine the adrenomimetics that inhibit mediator reuptake.
53. Determine the adrenomimetic with a mixed mechanism of action.
54. Determine the mechanisms of action of ephedrine.
55. Determine the adrenergic drug group/groups that increase blood pressure.
56. Determine the adrenergic drug group/groups with stimulating effects on the heart.
57. Determine the adrenergic drug groups that decrease blood pressure.
58. Determine the adrenergic drug group/groups that produce bronchodilation.
59. Determine the adrenergic drug groups that increase glucose levels.
60. Determine the adrenergic drug group/groups that reduce microcirculation.
61. Determine the effects of alpha-beta-adrenomimetics on the heart.
62. Determine the effects of alpha-beta-adrenomimetics on blood vessels.
63. Determine the effects of alpha-beta-adrenomimetics on blood pressure.
64. Determine the effects of alpha-adrenomimetics on blood pressure.
65. Determine the effects of alpha-beta-adrenomimetics on microcirculation.
66. Determine the effects of alpha-adrenomimetics on microcirculation.
67. Determine the effects of alpha-beta-adrenomimetics on the respiratory system.
68. Determine the effects of alpha-beta-adrenomimetics on metabolism.
69. Determine the effects of beta-adrenomimetics on the heart.
70. Determine the effects of alpha-adrenomimetics on blood vessels.
71. Determine the effects of dopaminomimetics on the heart.
72. Determine the effect of dopaminomimetics at high doses.
73. Determine the effect of dopaminomimetics at low doses.
74. Determine the effect of dopaminomimetics at medium doses.
75. Determine the effects of beta-adrenomimetics on metabolism.
76. Determine the effects of beta-adrenomimetics on the respiratory system.
77. Determine the effect of alpha-adrenomimetics on the heart.
78. Determine the mechanism of bradycardia caused by alpha-adrenomimetics.
79. Determine the phases of epinephrine action on blood pressure.
80. Determine the phase of norepinephrine action on blood pressure.
81. Determine the indications of alpha-beta-adrenomimetics.
82. Determine the indications of alpha-adrenomimetics.
83. Determine the indication of alpha-2-adrenomimetics with peripheral action.
84. Determine the indications of beta-2-adrenomimetics.
85. Determine the indication of beta-1-adrenomimetics.
86. Determine the indication/indications of dopaminomimetics.
87. Determine the drugs used in acute hypotension.
88. Determine the drug of choice for anaphylactic shock.
89. Determine the drug group/groups used in rhinitis.
90. Determine the drug group that produces a tocolytic effect.
91. Determine the adverse reactions of alpha-beta-adrenomimetics.
92. Determine the adverse reactions of alpha-adrenomimetics.
93. Determine the adverse reactions of beta-adrenomimetics.
94. Determine the non-selective alpha-adrenoblocker(s).
95. Determine the alpha-1-adrenoblocker preparations.
96. Determine the non-selective beta-adrenoblocker preparations.

97. Determine the beta-1-adrenoblocker preparations.
98. Determine the non-selective beta-adrenoblocker with vasodilatory action.
99. Determine the selective beta-adrenoblocker with vasodilatory action.
100. Determine the alpha-beta-adrenoblocker preparations.
101. Determine the effects of beta-adrenoblockers.
102. Determine the clinical effects of beta-adrenoblockers.
103. Determine the vasodilatory action mechanisms of beta-adrenoblockers.
104. Determine the effects of non-selective alpha-adrenoblockers.
105. Determine the effects of alpha-1-adrenoblockers.
106. Determine the indications of beta-adrenoblockers.
107. Determine the indication/indications of labetalol.
108. Determine the indications of non-selective alpha-adrenoblockers.
109. Determine the indication/indications of alpha-1-adrenoblockers.
110. Determine the adverse reactions of non-selective beta-adrenoblockers.
111. Determine the adverse reactions of non-selective alpha-adrenoblockers.
112. Determine the adverse reactions of alpha-1-adrenoblockers.
113. Determine the dopamine-blocker group/groups.
114. Determine the sympatholytic with mixed action.
115. Determine the sympatholytic with central action.
116. Determine the indication/indications of sympatholytics.
117. Determine the indication of methyl dopa.
118. Determine the difference between adrenoblockers and sympatholytics.
119. Determine the adverse reactions of sympatholytics.
120. Determine the mechanisms of action of sympatholytics.

#### **Drugs Acting on the Central Nervous System (CNS)**

1. Determine volatile inhalational general anesthetics
2. Determine gaseous inhalational general anesthetics
3. Determine the mechanisms of action of general anesthetics
4. Determine the groups of intravenous general anesthetics
5. Determine the pharmacological effects of general anesthetics on the central nervous and respiratory systems
6. Determine the cardiovascular adverse reactions of general anesthetics
7. Determine the preparations recommended for central anticholinergic syndrome induced by general anesthetics
8. Determine the groups of hypnotic preparations
9. Determine the hypnotics in the barbiturate group
10. Determine the hypnotics in the benzodiazepine group
11. Determine the hypnotic/hypnotics in the non-benzodiazepine group
12. Determine the hypnotic/hypnotics in the melatonin receptor agonist group
13. Determine the short-acting hypnotic/hypnotics
14. Determine the medium-acting hypnotic/hypnotics
15. Determine the long-acting hypnotic/hypnotics
16. Determine the mechanisms of hypnotic action of barbiturates
17. Determine the characteristics of the hypnotic effect of barbiturates
18. Determine the characteristic effects of barbiturates
19. Determine the indications of barbiturates
20. Determine the adverse reactions of barbiturates
21. Determine the mechanisms of hypnotic action of benzodiazepines
22. Determine the characteristics of the hypnotic effect of benzodiazepines
23. Determine the characteristic effects of benzodiazepines
24. Determine the indications of benzodiazepines

25. Determine the adverse reactions of benzodiazepines
26. Determine the mechanism(s) of hypnotic action of non-benzodiazepines
27. Determine the characteristics of the hypnotic effect of non-benzodiazepines
28. Determine the indications of non-benzodiazepines
29. Determine the adverse reactions of non-benzodiazepines
30. Determine the melatonin receptor agonist(s) as hypnotics
31. Determine the mechanisms of hypnotic action of melatonin agonists
32. Determine the characteristics of the hypnotic effect of melatonin agonists
33. Determine the pleiotropic effects of melatonin
34. Determine the indications of melatonin agonists
35. Determine the orexin receptor antagonist(s) as hypnotics
36. Determine the characteristics of orexin receptor antagonists as hypnotics
37. Determine the hypnotics used in sleep onset disturbances (initial insomnia)
38. Determine the hypnotics used in frequent nocturnal awakenings (intermittent insomnia)
39. Determine the hypnotics used in reducing sleep duration (terminal insomnia)
40. Determine the groups of symptomatic anticonvulsants
41. Determine the groups of skeletal muscle relaxants (central muscle relaxants)
42. Determine the benzodiazepine(s) used as central muscle relaxants
43. Determine the characteristics of the muscle relaxant effect of benzodiazepines
44. Determine the indications of benzodiazepines as central muscle relaxants
45. Determine the preparations in the diverse central muscle relaxants group
46. Determine the preparations used in major epileptic seizures
47. Determine the preparation(s) used in minor epileptic seizures
48. Determine the first-choice preparation in status epilepticus (seizure state)
49. Determine the preparations used in focal epileptic seizures
50. Determine the mechanisms of action of antiepileptics
51. Determine the groups of antiparkinsonian preparations
52. Determine the dopaminergic preparations as antiparkinsonian
53. Determine the cholinoblocker preparation as antiparkinsonian
54. Determine the mechanisms of action of antiparkinsonians
55. Determine the types of local action of ethyl alcohol
56. Determine the indications of ethyl alcohol in medicine
57. Determine the sequential influence of ethyl alcohol on the CNS
58. Determine the effects of ethyl alcohol on the stomach depending on concentration
59. Determine the metabolic changes in the liver under the action of ethyl alcohol
60. Determine the characteristics of absorption of ethyl alcohol depending on concentration
61. Determine the characteristics of the distribution of ethyl alcohol
62. Determine the pathways of metabolism of ethyl alcohol
63. Determine the approved preparations used in the treatment of alcoholism
64. Determine the mechanism of action of disulfiram
65. Determine the mechanism of action of naltrexone in alcoholism
66. Determine the groups of antimicrobials that can cause a disulfiram-like reaction
67. Determine the groups of preparations used as sedatives
68. Determine the indications of sedative preparations
69. Determine the groups of anxiolytic preparations
70. Determine the short-acting anxiolytic(s)
71. Determine the medium-acting anxiolytic(s)
72. Determine the long-acting anxiolytic(s)
73. Determine the mechanism of action of benzodiazepine anxiolytics
74. Determine the effects of benzodiazepine anxiolytics
75. Determine the indications of benzodiazepine anxiolytics
76. Determine the adverse reactions of benzodiazepine anxiolytics

77. Determine the antipsychotics in the phenothiazine group
78. Determine the antipsychotics in the butyrophenone group
79. Determine the antipsychotics in the diphenylbutylpiperidine group
80. Determine the antipsychotics in the dibenzodiazepine group
81. Determine the typical antipsychotics
82. Determine the atypical antipsychotics
83. Determine the mechanisms of action of antipsychotics
84. Determine the effects of antipsychotics
85. Determine the mechanism of the sedative effect of antipsychotics
86. Determine the mechanism of the antipsychotic effect of antipsychotics
87. Determine the mechanism of the antiemetic effect of antipsychotics
88. Determine the mechanism of the antipsychotic effect of potentiating analgesics
89. Determine the mechanism of action of the hypotensive effect of antipsychotics
90. Determine the indications of antipsychotics in psychiatry
91. Determine the indications of antipsychotics in somatic diseases
92. Determine the central nervous system adverse reactions of antipsychotics
93. Determine the ophthalmic adverse reactions of antipsychotics
94. Determine the endocrine adverse reactions of antipsychotics
95. Determine the cardiovascular adverse reactions of antipsychotics
96. Determine the digestive adverse reactions of antipsychotics
97. Determine the groups of thymoleptics
98. Determine the mechanisms of action of thymoleptics
99. Determine the effects of thymoleptics
100. Determine the indications of normotimics
101. Determine the antidepressants that non-selectively inhibit monoamine reuptake
102. Determine the antidepressants that selectively inhibit serotonin reuptake
103. Determine the antidepressants that selectively inhibit norepinephrine reuptake
104. Determine the antidepressants that irreversibly inhibit monoamine metabolism
105. Determine the antidepressants that reversibly inhibit monoamine metabolism
106. Determine the effects of antidepressants
107. Determine the mechanisms of action of antidepressants
108. Determine the central adverse reactions of heterocyclic antidepressants
109. Determine the peripheral adverse reactions of heterocyclic antidepressants
110. Determine the adverse reactions of monoamine oxidase inhibitors (MAOIs)
111. Determine the groups of nootropics
112. Determine the cerebrovascular nootropics
113. Determine the mechanisms of action of nootropics
114. Determine the effects of nootropics
115. Determine the indications of nootropics
116. Determine the adverse reactions of nootropics
117. Determine the CNS stimulants from the phenylalkylamine group
118. Determine the CNS stimulants from the piperidine group
119. Determine the mechanisms of action of CNS stimulants from the amphetamine group
120. Determine the effects of CNS stimulants from the phenylalkylamine group
121. Determine the indications of CNS stimulants
122. Determine the adverse reactions of CNS stimulants with limited use
123. Determine the adverse reactions of CNS stimulants in chronic abuse
124. Determine the effects of CNS stimulants from the methylxanthine group
125. Determine the indications of CNS stimulants from the methylxanthine group
126. Determine the adverse reactions of CNS stimulants from the methylxanthine group at excessive doses
127. Determine opioid analgesics

128. Determine strong agonists of opioid analgesics
129. Determine medium and weak agonists of opioid analgesics
130. Determine opioid analgesics as agonists-antagonists
131. Determine opioid analgesic antagonists
132. Determine non-opioid analgesics with central action
133. Determine the analgesic with a mixed mechanism of action
134. Determine the groups of analgesics with peripheral action
135. Determine the mechanism of action of opioid analgesics at the systemic level
136. Determine the levels of analgesic action achieved by opioid analgesics
137. Determine the outcome of opioid analgesics' action at the level of the dorsal horns of the spinal cord
138. Determine the outcome of opioid analgesics' action at the level of the thalamus, hypothalamus, reticular formation
139. Determine the outcome of opioid analgesics' action at the level of the cerebral cortex
140. Determine the actions of opioid analgesics on the mental sphere
141. Determine the centers that are stimulated by opioid analgesics.
142. Determine the centers that are inhibited by opioid analgesics.
143. Determine the effects of opioid analgesics on the digestive tract.
144. Determine the effect of opioid analgesics on the cardiovascular system.
145. Determine the effect of opioid analgesics on the respiratory system.
146. Determine the indications for opioid analgesics.
147. Determine the adverse reactions of opioid analgesics from the central nervous system.
148. Determine the adverse reactions of opioid analgesics from the digestive tract.
149. Determine the adverse reactions of opioid analgesics from the respiratory system.
150. Determine the adverse reactions of opioid analgesics from the urinary system.
151. Determine the mechanism(s) of action of paracetamol.
152. Determine the indications for paracetamol.
153. Determine the adverse reactions of paracetamol.
154. Determine the mechanisms of action of tramadol.
155. Determine the indications for tramadol.
156. Determine the adverse reactions of tramadol.
157. Determine the mechanisms of action of non-opioid analgesics with peripheral action.
158. Determine the effects of analgesics with peripheral action.
159. Determine the indications for analgesics with peripheral action.
160. Determine the groups of non-selective non-steroidal anti-inflammatory drugs (NSAIDs).
161. Determine the NSAIDs derived from arylacetic acids.
162. Determine the NSAIDs derived from indoleacetic acids.
163. Determine the NSAIDs derived from arylpropionic acids.
164. Determine the selective COX-2 inhibitor NSAIDs.
165. Determine the effects of non-steroidal anti-inflammatory drugs (NSAIDs).
166. Determine the indications for non-steroidal anti-inflammatory drugs (NSAIDs).
167. Determine the adverse reactions of non-steroidal anti-inflammatory drugs (NSAIDs).
168. Determine the contraindications for non-steroidal anti-inflammatory drugs (NSAIDs).
169. Determine the specific COX-2 inhibitor.
170. Determine the pharmacological property characteristic of prostaglandins.
171. Determine which pharmacological effects are characteristic of NSAIDs.
172. Determine the representative drug of indoleacetic acid derivatives.
173. Determine the NSAID that specifically blocks COX-2.
174. Determine the NSAID from the group with a non-selective COX inhibitor mechanism.
175. Determine the mechanism of action of acetylsalicylic acid.
176. Determine the NSAID that has an anti-aggregant effect at low doses.

177. Determine the analgesic drug with antipyretic effects but lacking anti-inflammatory effects.
178. Determine the drug that causes Reye's syndrome.

#### **Antithrombotics, Hemostatics, and Antianemics**

1. Determine the groups of direct anticoagulants.
2. Determine the groups of antiaggregants.
3. Determine the direct antagonists of factor Xa.
4. Determine the direct antagonists of thrombin.
5. Determine the preparation(s) of heparinoids as anticoagulants.
6. Determine the indirect anticoagulant(s).
7. Determine the antiaggregant that blocks thromboxane A<sub>2</sub> receptors.
8. Determine the antiaggregant that inhibits phosphodiesterase.
9. Determine the antiaggregant that inhibits cyclooxygenase.
10. Determine the antiaggregant(s) that block purinergic receptors.
11. Determine the antiaggregant preparations that reduce blood viscosity.
12. Determine the antiaggregant(s) that block GPIIb/IIIa receptors.
13. Determine the characteristic effects of standard heparin.
14. Determine the anticoagulant mechanism of action of standard heparin.
15. Determine the anticoagulant mechanism of action of low-molecular-weight heparins.
16. Determine the mechanism of action of indirect anticoagulants.
17. Determine the mechanism of action of clopidogrel as an antiaggregant.
18. Determine the mechanism of action of acetylsalicylic acid as an antiaggregant.
19. Determine the mechanism of action of pentoxifylline as an antiaggregant.
20. Determine the mechanism of action of ridogrel as an antiaggregant.
21. Determine the mechanism of action of abciximab as an antiaggregant.
22. Determine the mechanism of action of dipyridamole as an antiaggregant.
23. Determine the mechanism of action of prostaglandin analogs as antiaggregants.
24. Determine the effects of acetylsalicylic acid as an antiaggregant.
25. Determine the indications for standard heparin.
26. Determine the indications for low-molecular-weight heparins.
27. Determine the indications for sulodexide.
28. Determine the indications for indirect anticoagulants.
29. Determine the indications for indirect fibrinolytics.
30. Determine the indications for antiaggregants.
31. Determine the mechanism of action of fondaparinux.
32. Determine the adverse reactions of standard heparin.
33. Determine the anticoagulant preparations used in SARS-CoV-2.
34. Determine the groups of hemostatic preparations with systemic action.
35. Determine the groups of hemostatic preparations with local action.
36. Determine the indications for thrombin.
37. Determine the indications for fibrinogen.
38. Determine the indications for aprotinin.
39. Determine the indications for synthetic antifibrinolytics.
40. Determine the indications for calcium preparations as aggregants.
41. Determine the indications for astringent preparations as hemostatics.
42. Determine the indications for vasoconstrictor preparations as hemostatics.
43. Determine the indications for vitamin K preparations.
44. Determine the mechanism of action of vitamin K preparations.
45. Determine the preparation(s) used in hemolytic anemia.
46. Determine the preparation(s) used in hyperchromic anemia.



47. Determine the preparation(s) used in hypochromic anemia.
48. Determine the preparation(s) used in hypo- and aplastic anemias.
49. Determine the indication(s) for erythropoietin preparations.
50. Determine the indication(s) for iron preparations.
51. Determine the effects of erythropoietin.
52. Determine the preparations that stimulate leukopoiesis.

**Note:**

Materials for the exams based on the following bibliographic sources:

1. Pharmacology course materials
2. Kharkevitch D. A. „Pharmacology”. CEP. Medicina, Chişinău, 2017
3. Ghicavîi V.i et al. Prescription guide. Chişinău, Medicina, 2021.