

**Introduction to Pharmacology
Spring Semester, 2001**

**Study Questions for Exam # 4
Chapters 36-53**

The student should be able to

Chapter 36: Drug Abuse– Basic Considerations

1. Define drug abuse and the factors that influence change in what is characterized as drug abuse.
2. Define the following terms: addiction, tolerance, cross-dependence, physical vs psychological dependence, withdrawal symptoms.
3. Discuss some factors that contribute to drug abuse, and some of the approaches to modifying drug using behavior.
4. Describe what the controlled substances act is and the DEA's 5 categories of Schedules used for classifying drugs.

Chapter 37: Drug Abuse: Alcohol

5. Give the effects of alcohol on CNS function.
6. Describe the effects of alcohol on the following: sleep, cardiovascular system respiration, stomach, kidney, pancreas, breast cancer and sexual function. Can alcohol be healthy?
7. Understand the metabolic pathways of alcohol pharmacokinetics, and explain how these lead to physical dependence, tolerance and toxicity.
8. Describe how the benzodiazepines, naltrexone and disulfiram are used to treat alcoholism.

Chapter 38: Drug Abuse: Opioids, Depressants, Psychostimulants, Marijuana, Psychedelics, Inhalants, and Nicotine

9. Describe some of the symptoms of Opioid use. What drugs are used to help with opioid abuse?
10. Describe how barbiturates affect CNS function and the differences between barbiturates and benzodiazepines.
11. Define the characteristics of cocaine abuse and discuss what can be done to help those who are abusers.
12. Describe amphetamine abuse and discuss what can be done to treat it.

13. Discuss marijuana abuse, the effects of THC and its action.
14. Describe the abuse of nicotine, its mechanism of action, its ability to cause tolerance and dependence, and treatments for nicotine abuse.

Chapter 39: Diuretics

15. Describe the structure and functions of the nephron and kidney function.
16. Understand where and how each of the following general drugs act on the kidney: mannitol, Furosemide, thiazides, and spironolactone.
17. Describe the function of aldosterone on kidney function.

Chapter 40: Agents affecting the volume and ion content of Body fluids

18. Define the following terms and causes/effects where appropriate: isotonic, respiratory alkalosis and respiratory acidosis, hypokalemia, hypomagnesemia.

Chapter 41: Review of Hemodynamics

19. Diagram the flow of blood from the heart → aorta, arterioles, capillaries, venules, veins, heart, lungs. What are the pressures in each area?
20. Describe how veins differ from arteries.
21. Describe and understand the concept of Starling's Law on heart function.
22. Understand the factors that determine cardiac output and the factors that help regulate arterial pressure. Be able to define/understand the following terms: stroke volume, peripheral resistance, cardiac output.
23. Understand the three systems that control arterial pressure: autonomic nervous system (ANS), renin-angiotensin system (RAS), and the kidneys.

Chapter 42: Drugs acting on the Renin-Angiotensin System

24. Define the role of angiotensin on vasoconstriction and release of aldosterone. Also, how does this system help regulate blood pressure?
25. Describe the function of Angiotensin -Converting Enzyme (ACE).
26. Discuss the function and action of ACE inhibitors and the conditions in which they might be used in treatment protocols.
27. Understand the differences between ACE inhibitors and Angiotensin Receptor Blockers (ARBs).

Chapter 43: Calcium Channel Blockers

28. Describe the role of calcium channel blockers in the following: vascular smooth muscle, heart, β_1 adrenergic receptors. Give examples of action using specific drugs.

29. Why would you use calcium channel blockers?

Chapter 44: Vasodilator

30. Discuss the use of vasodilator in treatment protocols.

Chapter 45: Drugs for Hypertension

31. Define: hypertension, primary hypertension, secondary hypertension.

32. Understand the consequences of hypertension.

33. Give the risk factors for hypertension.

34. Describe the drugs that are used to manage hypertension and how they work.

Chapter 46: Drugs for Angina Pectoris

35. Define angina pectoris and give the causes and risk factors that lead to angina.

36. Describe how the following work to reduce angina: nitrates, beta blockers, calcium channel blockers.

37. Describe the following: coronary artery bypass graft surgery (CABG) and per cutaneous transluminal coronary angioplasty (PTCA).

Chapter 47: Drugs for Heart Failure

38. Define heart failure and explain why there would be increased fluid retention and increased blood volume in heart failure.

Chapter 48: Antidysrhythmic Drugs

39. Describe the EKG and the meaning of each peak (QRST) wave.

40. Discuss AV block, tachycardia, bradycardia, ventricular fibrillation

Chapter 49: Prophylaxis of Coronary Artery Disease: Drugs that lower LDL Cholesterol Levels

41. Understand the functions of LDL and HDL and their role in atherosclerosis (define).

42. Give the treatment strategies for controlling LDL and HDL levels.

Chapter 50: Anticoagulant, Antiplatelet, and thrombolytic Drugs

43. Understand the pathophysiology of coagulation. Use the following terms in your discussion: platelet and platelet aggregation, fibrinogen bridges, thromboxane, thrombin, collagen, PAF, and fibrin.

44. Define thrombosis and embolism.
45. Give some treatment protocols used in the treatment of clotting disorders.

Chapter 51: Management of Myocardial Infarction

46. Define MI and the causes.
47. Discuss the management of MI.

Chapter 52: Drugs for Deficiency Anemias

48. Define anemia and give some causes of the disorder.
49. Give the function of iron in rbc/hemoglobin development, and describe the iron cycle (ferritin and transferrin).
50. Describe the importance of iron, Vitamin B₁₂, and folic acid.

Chapter 53: Hematopoietic and Thrombopoietic growth factors

51. Give the function of “stem cells” and are they pluripotent?
52. Define the functions of erythropoietin, GC-CSF, GM-CSF, and Interleukin-11.

Table of Drugs (Chapter 36-53)

for the following disorders give the drugs, their mechanisms of action and their function:

	Drug	Action	Function
Alcohol	Benzodiazpine		
	Disulfiram		
	Naltrexone		
Opioid	Methadone		
	Clonidine		
Barbiturate	Phenobarbitol		
Nicotine	NRT		
	Bupropion		
Volume Disorders	Hypotonic Fluid		
	Hypertonic Fluid		
	Furosemide		
	Thiazide		
	Spironolactone		
Blood Pressure	Angiotensin		
	Renin		
	Monopril		
	Catopril		
	Losartan		
Heart/Hypertension	Verapamil		
	Nifedipine		
	Nitroglycerin		
Angina Pectoris	beta blockers		
	CCB's		
	Dioxin & Digitalis		
Dysrhythmias	Quinidine		
	Propanolol		
Cholesterol	Pravachol		

	Niacin		
Coagulation	Heparin		
	Warfarin		
	Alteplase		
	Streptokinase		
Myocardial Infarction	Aspirin		
Anemia	Ferrous Sulfate		
	Vitamin B ₁₂		
	Pteroylglutamic Acid		
Growth Factors	IL-11		
	GM-CSF		
	G-CSF		