

# Anatomy and Physiology II MED 165

## Circulatory Physiology Study Guide

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1. What are the two events of the cardiac cycle?
2. What initiates the cardiac contraction?
3. What happens in the artia during diastole? What happens in the ventricle during diastole?
4. Which valves are open during diastole? Which valves are closed during diastole?
5. How much ventricular filling occurs before contraction of the atria?
6. What happens in the artia during systole? What happens in the ventricle during systole?
7. Which valves are open during systole? Which valves are closed during systole?
8. How much blood is pumped out with each systole?
9. What are the two components of cardiac output?
10. What factors change cardiac output?
11. What is ejection fraction?
12. What is the definition of stroke volume?
13. A patient has 140 ml (EDV) of blood in their heart at the end of the diastolic phase of the cardiac cycle. When the ventricle contracts, there is 50 ml of blood left in the left ventricle (ESV). What is the patient's stroke volume? Assuming their heart rate is 80 beats per minute, what is their cardiac output?
14. If their end systolic volume is reduced to 35 ml of blood, what is their cardiac output?
15. If their end diastolic volume is increased to 160 ml of blood, what is their cardiac output?
16. If their heart rate is increased to 120 beats per minute, what is their cardiac output?
17. Based on these equations, what do you predict is the best way to increase cardiac output?
18. What three factors affect the end diastolic and systolic volumes?
19. What is preload?
20. What is afterload?
21. What is inotropy?
22. How does an increased preload affect the cardiac output?
23. What factors increase preload?
24. What factors decrease preload?
25. What is afterload?
26. How does an increased afterload affect the cardiac output?
27. What factors increase afterload?
28. What factors decrease afterload?
29. How does increased inotropy affect cardiac output?
30. What can increase inotropy?
31. What can decrease inotropy?
32. Can changes in preload, afterload or inotropy be done in isolation?
33. What is the normal heart rate?

34. What is it called when the heart rate is too slow?
35. What is it called when the heart rate is too fast?
36. How does the heart rate respond to sympathetic stimulation?
37. How does the heart rate respond to parasympathetic stimulation?
38. How does the heart respond to the hormones thyroxine and epinephrine?
39. What role do increases and decreases in sodium, potassium, and calcium play in heart rate?
40. What is blood flow? How is it measured?
41. What is velocity? How is it measured?
42. Where is the velocity of blood the fastest? Where is the velocity of blood the slowest?
43. How do small changes in vessel diameter affect blood flow?
44. What is blood pressure?
45. What is vascular resistance?
46. What is the normal blood pressure in the arterial system?
47. What is the normal blood pressure in the arterial side of the capillary bed? Venous side of the capillary bed?
48. What is the normal pressure as the blood returns to the right atrium?
49. How does vasoconstriction affect blood flow?
50. Which branch of the autonomic nervous system causes vasoconstriction?
51. Which branch of the autonomic nervous system causes vasodilation?
52. Which medications can cause vasodilation?
53. How does blood viscosity affect blood flow? What can cause increased blood viscosity? How can you decrease blood viscosity?
54. How does the length of the blood vessels affect blood flow?
55. How does the body have to overcome the restrictions placed on blood flow from the increased vessel length?
56. How does the body intrinsically manage blood flow?
57. How does the body centrally manage blood flow?
58. In what region of the brain, does the nervous system centrally manage blood flow and pressure?