

## Chapter 15 Reading guide

1. What was the only year in the 20<sup>th</sup> century that CVD was not the #1 killer in the US? What was the #1 killer that year?
2. In the US, at birth, what is the probability of eventually dying from CVD? Cancer? Accidents? Diabetes? HIV?
3. Since 1984, have more women or men died from CVD?
4. Jump ahead for a minute to page 455, “types of CVD.” List them. Are you surprised to see stroke?
5. Why is the prevention of CVD preferable to treatment?
6. Which chambers of the heart receive blood from the body and the lungs? Which chambers of the heart pump blood to the body and the lungs?□
7. Define systole and diastole.□See the supplemental lectures for help.
8. How much blood does the heart pump per day?□
9. Name the major artery that receives oxygenated blood from the left side of the heart and pumps it to the rest of the arteries in the body.□
10. What are the smallest blood vessels and what is their significance?□
11. Between arteries and veins, which vessel type takes blood away from the heart, and which vessel type delivers blood to the heart?□
12. Describe several functions of blood.
13. At rest, what is the average heart rate? What about that of a well-conditioned heart?
14. Complete the Assess Yourself: Understanding your CVD risk.
15. What is atherosclerosis/ CAD? What are the four primary risk factors?
16. Explain how inflammation may be at the root of CAD. What role might certain pathogens, smoking, elevated LDL, diabetes, hypertension, and homocysteine play related to inflammation? Go to the “New Horizons” box and explain what we know about homocysteine, folate, vitamin B6 and vitamin B12.
17. During a routine physical, your doctor suggests taking a blood sample to test for LDLs, c-reactive protein, and triglycerides. Explain how they are related, and why your doctor is interested in looking at them. Do you hope their values are high or low?
18. Explain metabolic syndrome.
19. Define thrombus, embolus, coronary thrombosis and myocardial infarction. Explain how they are related.
20. What is angina? How does it feel? How common is it? Does it indicate underlying heart disease?
21. What are arrhythmias? Are they always life threatening? List and explain the types covered by the book.
22. What is congestive heart failure? What are some factors that can damage the heart and lead to CHF? Is it treatable? Explain.
23. Explain why fluids accumulate in the lungs and other parts of the body during CHF.
24. What are congenital and rheumatic heart disease? What causes rheumatic?
25. What is a stroke, and how/why does it occur?

26. Explain specifically how stroke and myocardial infarction are the same, and how they are different. See the questions related to the required links for help.
27. How are transient ischemic attacks related to stroke?
28. What are warning signs of TIA? Of stroke?
29. List risk factors for CVD that you can control. Now list those you cannot.
30. How might smoking increase risk of CVD?
31. What are LDLs? HDLs? Why are too many LDLs “bad?” And why are too FEW HDLs “bad?”
32. What types of dietary fats raise LDLs and lower HDLs (there are two major types, one occurs naturally, one does not)?
33. Explain several steps (ie, lifestyle habits) you can take to increase HDLs and decrease LDLs.
34. What do we know about the role of triglycerides and heart disease?
35. List the desirable numbers for: total cholesterol (just list desirable), LDL (just list optimal), HDL (just list high), and triglycerides (just list normal).
36. Does body weight affect CVD risk? Explain.
37. Do diabetics have a higher risk of CVD? Explain.
38. What is hypertension? How is it related to your risk of CVD?
39. Explain how blood pressure is reported, using the terms systolic and diastolic pressure.
40. What is a normal/desirable blood pressure?
41. Can you tell what your blood pressure is without actually measuring it? Explain.
42. What are some treatments for hypertension? Of those listed, how many are simply lifestyle adjustments?
43. Explain why postmenopausal women are at increased risk for CVD. If you are female, why might it pay to keep your risk factors low even before menopause?
44. Explain some differences between men and women in their experience and treatment of myocardial infarction.
45. Explain the following diagnostic procedures: ECG, angiography, DET scan, radionucleotide imaging, MRI, CT
46. What do we know about the effect of hormone replacement therapy on CVD risk?
47. Compare and contrast angioplasty with coronary bypass surgery.
48. Explain the roles of aspirin, thrombolysis, and cardiac rehabilitation in preventing and treating CVD.
49. Explain how you can be your own personal advocate when facing CVD-related health care (or any kind of health care!)
50. Explain why moderate amounts of red wine and dark chocolate may be good for you. What other foods/drinks have similar effects? BTW, researchers recommend at least 70% dark chocolate for best results... and now you can buy some that have dried fruit and nuts in them, for added antioxidants and yumminess!

-From required links-

51. Take the stroke quiz from RealAge. Which of the victims may be having a stroke?
52. Among health professionals, there is a saying about stroke that goes, “time is brain.” Based on this RealAge article and the text, what do you think that means?

53. What are the 3 things to ask if you suspect someone is having a stroke?
54. The “Second Opinion” opening page has a nice, short explanation of how stroke and heart attack are similar. Check it out to help you with the question to that effect, above.

## **Supplemental Lecture**

### **I. HDLs and LDLs**

Just to be clear, HDLs and LDLs both are packages that carry cholesterol in the blood. There's no difference in the cholesterol; it just has to do with where the cholesterol is going. LDLs deliver cholesterol to cells from the liver. HDLs return any excess cholesterol that cells didn't use to the liver.

What do cells use cholesterol for? Lots of stuff. For example, cholesterol is a vital part of their outer membrane, cholesterol is used by neurons to help insulate their electrical activity and many hormones, including the sex hormones, are made from cholesterol. The problem occurs when there are too many, or old, LDLs in the blood. Then the LDLs can be attacked by immune cells and their cholesterol is dumped free into the blood. Free cholesterol has the tendency to clump up and this is how plaques can start.

Luckily, HDLs come along and sweep up free cholesterol in the blood, and return it to the liver. The liver can get rid of excess cholesterol by putting it into the digestive tract to become part of feces. You can see why the more HDLs, the better!

### **II. The Risks for Heart Attack & How they Apply to other Diseases**

Researchers are discovering that the same risk factors that increase your chances for heart attack increase your chances for other diseases, including alzheimer's disease. And, the same preventive measures that protect you from developing heart disease can protect you from developing those other diseases. So remember to exercise regularly and eat plenty of fruits and vegetables!

### **III. Systolic and Diastolic pressures**

Just to clarify: when the heart ventricles contract, they push blood into the arteries that will carry blood to your lungs and body. There is a lot of pressure in the arteries when that happens, as large volumes of blood push against the arteries. It's like suddenly turning a hose on to full power. Ventricular contraction is called ventricular SYTOLE. Systolic blood pressure measures this, the highest pressure against your arteries during a heart beat cycle.

When the ventricles then relax, no more blood is pushed into the arteries, and the blood that's there is no longer exerting as much pressure against those arteries. It's like suddenly turning off the hose. Ventricular relaxation is called ventricular DIASTOLE. Diastolic blood pressure measures this, the lowest pressure against your arteries during a heart beat cycle.

So... your blood pressure reflects the highest pressure your arteries are subjected to, and how much relief they get, during heart beat cycles.

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