

Name _____ Date _____

Lesson 11.1: Learning the Key Terms

Directions: Place the letter of the best definition next to each key term.

- | | |
|---------------------------------------|---|
| _____ 1. aorta | A. a period of contraction when the chambers are pumping blood out of the heart |
| _____ 2. aortic valve | B. the semilunar valve between the left ventricle and the aorta that prevents blood from flowing back into the left ventricle |
| _____ 3. atrioventricular (AV) valves | C. valves situated at the opening between the heart and the aorta, and at the opening between the heart and the pulmonary artery; they prevent backflow of blood into the ventricles |
| _____ 4. cardiac output | D. the two valves (tricuspid and mitral) situated between the atria and the ventricles |
| _____ 5. diastole | E. narrowing of the blood vessels, which decreases blood flow |
| _____ 6. endocardium | F. thick wall that divides the two ventricles in the heart |
| _____ 7. epicardium | G. the outermost layer of the heart and the innermost layer of the pericardial sac |
| _____ 8. inferior vena cava | H. the middle layer of the heart, which makes up about 2/3 of the heart muscle |
| _____ 9. interatrial septum | I. the amount of blood pumped from the heart per minute |
| _____ 10. interventricular septum | J. the volume of blood pumped from the heart per beat |
| _____ 11. mitral valve | K. the valve that closes the orifice between the right atrium and right ventricle of the heart; composed of three cusps |
| _____ 12. myocardium | L. a large arterial trunk that arises from the base of the left ventricle and channels blood from the heart into other arteries throughout the body |
| _____ 13. papillary muscle | M. largest vein in the human body that returns deoxygenated blood to the right atrium of the heart from body regions below the diaphragm |
| _____ 14. semilunar valves | N. second largest vein in the body that returns deoxygenated blood to the right atrium of the heart from the upper half of the body |
| _____ 15. stroke volume | O. one of the small muscular bundles attached at one end to the chordae tendineae and at the other to the innermost or endocardial wall of the ventricles; maintains tension on the chordate tendineae as the ventricle contracts |
| _____ 16. superior vena cava | P. the innermost layer of the heart, which lines the interior of the heart chambers and covers the valves of the heart |
| _____ 17. systole | Q. widening of the blood vessels, which increases blood flow |
| _____ 18. tricuspid valve | R. the valve that closes the orifice between the left atrium and left ventricle of the heart; bicuspid valve |
| _____ 19. vasoconstriction | S. the period of relaxation in the heart when the chambers are filling with blood |
| _____ 20. vasodilation | T. the wall that separates the right and left atria in the heart |

Lesson 11.1: Study Questions

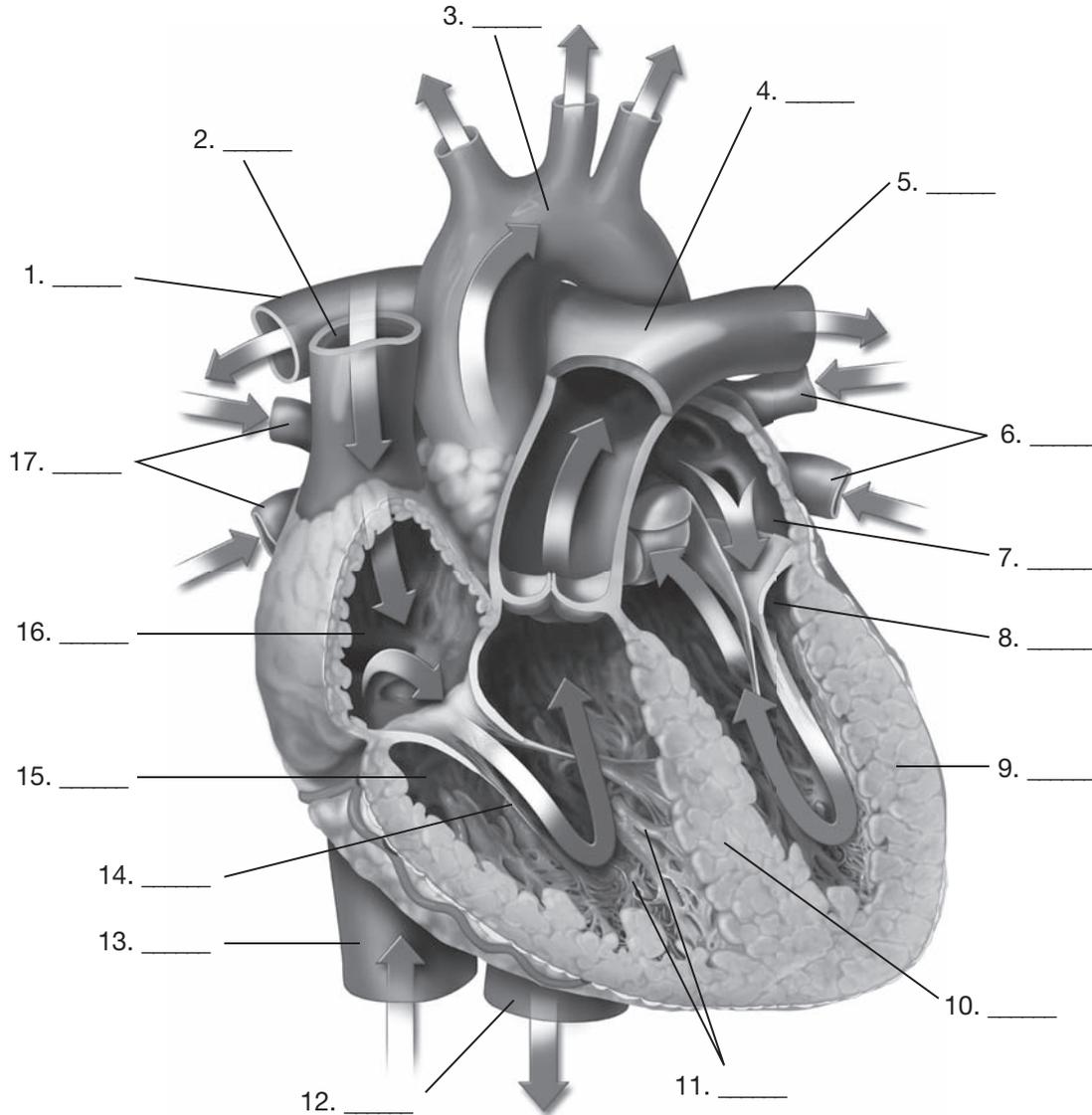
Directions: Answer the questions below on a separate sheet of paper. Studying the answers will help you prepare for the chapter test.

1. What are the pump, pipes, and fluid of the cardiovascular system?
2. Describe the functions of the cardiovascular system.
3. What is the average number of beats per minute in a normal adult heart?
4. Describe the location of the heart.
5. As the right and left ventricles contract almost simultaneously, what are they doing?
6. What would occur if the valves were not secured by the chordate tendineae and the papillary muscles?
7. Which set of valves is responsible for allowing the blood to flow from the ventricles into the lungs and the rest of the body?
8. Which valve does blood move through as it goes from the right atrium to the right ventricle?
9. Which artery carries blood to the lungs to be oxygenated?
10. As blood collects in the left atrium, pressure increases in the chamber, forcing which valve to open?
11. What is the name of the sac that encases the heart?
12. What are the three layers of the heart?
13. What are the two phases of the cardiac cycle?
14. What proportion of a cardiac cycle is spent in diastole and how much in systole?
15. Define *mean arterial pressure (MAP)*. What formula can be used to determine the MAP?
16. What produces the “lub-dub” sound of the heart we hear through a stethoscope?
17. How does intense aerobic training alter an athlete’s heart?
18. What is cardiac output (Q)? What is the formula for determining cardiac output?

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Lesson 11.1: The Heart

Directions: Label the figure with the letter of the appropriate callouts from the list provided.



- | | | | |
|----------------------|---------------------------------------|---|----------------------------|
| A. chordae tendineae | F. left pulmonary artery to left lung | J. descending aorta | N. right ventricle |
| B. left ventricle | G. left atrium | K. myocardium | O. interventricular septum |
| C. right atrium | H. right pulmonary veins | L. right pulmonary artery to right lung | P. papillary muscles |
| D. pulmonary trunk | I. superior vena cava | M. left pulmonary veins | Q. aortic arch |

Lesson 11.2: Learning the Key Terms

Directions: Use the terms listed below to fill in the blanks of the sentences.

arrhythmia	bundle of His	premature ventricular contractions (PVCs)	sinoatrial node (SA node)
atrial fibrillation	depolarize	Purkinje fibers	tachycardia
atrioventricular node (AV node)	heart block	repolarize	ventricular fibrillation
baroreceptors	left bundle branches	right bundle branches	ventricular tachycardia
bradycardia	premature atrial con- tractions (PACs)		

1. With the heart rate between 150 and 250 bpm, _____ is a life-threatening arrhythmia in which the ventricles, rather than the SA node, initiate the heartbeat.
2. The _____ is a small mass of specialized tissue located in the right atrium that normally acts as the pacemaker of the heart.
3. A condition common among athletes, _____ is a normal heart rhythm but with a rate below 60 bpm.
4. The left limbs or branches through which electrical impulses are transmitted from the bundle of His through the left ventricle are known as _____.
5. A condition in which the atria contract in an uncoordinated, rapid manner (rate above 350 bpm), _____ causes the ventricles to contract irregularly.
6. A condition in which an irritable piece of atrial heart tissue fires before the SA node, _____ causing the atria to contract too soon.
7. The _____ is a small mass of tissue that transmits impulses received from the sinoatrial node to the ventricles via the bundle of His.
8. Electrical impulses from the bundle of His are transmitted through the right ventricle via the _____.
9. The _____ is a slender bundle of modified cardiac muscle that conducts electrical impulses from the AV node to the left and right bundle branches to Purkinje fibers in the ventricle.
10. A normal heart rhythm but with a rate above 100 bpm is called _____.
11. A(n) _____ is an irregular heartbeat or rhythm.
12. To contract is to _____; the atria and ventricles do this as the heart beats.
13. Pressure-sensitive nerve endings in the atrium, aortic arch, and carotid arteries are called _____.
14. To relax means to _____; the atria and ventricles do this as the heart beats.
15. _____ is a condition in which the impulses traveling from the SA node to the ventricles are delayed, intermittently blocked, or completely blocked by the AV node.
16. _____ is a life-threatening condition in which the heart ventricles quiver at a rate greater than 350 bpm.
17. A condition in which Purkinje fibers fire before the SA node, _____ causes the ventricles to contract prematurely.
18. _____ are part of the impulse-conducting network of the heart that rapidly transmits impulses throughout the ventricles, causing ventricular contraction.

Name _____ Date _____

Lesson 11.2: Study Questions

Directions: Answer the questions below. Studying the answers will help you prepare for the chapter test.

1. What three mechanisms regulate the heart?
2. What is the common name for sinoatrial node, or SA node?
3. At what rate does the SA node tell the heart to beat? How does the SA node communicate this to the heart?
4. What collective branch of the nervous system is associated with the cardiac center of the heart?
5. Which segment of the nervous system directs the heart to *increase* the number of beats per minute? Which segment of the nervous system directs the heart to *decrease* the number of beats per minute?
6. What is the function of the baroreceptors?
7. Which hormones released by the endocrine system affect the heart rate?
8. Describe the conduction system of the heart.
9. What is the AV node's role in the conduction system of the heart?
10. To which structures does the bundle of His carry electrical impulses, and what does it accomplish?
11. What does *ECG* stand for? What does an ECG record?
12. What is the key difference between arrhythmias that originate in the atria or AV node as compared to those that originate in the ventricle?
13. List four potential causes of an arrhythmia.
14. List the types of arrhythmias.
15. Which type of heart block is life-threatening and why?
16. Why do heart-transplant patients have heart rates higher than normal at approximately 90 bpm?
17. What is a defibrillator and what is its function?

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Lesson 11.2: Identifying Arrhythmia Patterns

Directions: Label the figure with the appropriate callouts from the list provided.



1. _____



5. _____



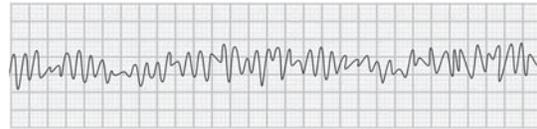
2. _____



6. _____



3. _____



7. _____



4. _____



8. _____



9. _____

atrial fibrillation

sinus bradycardia

sinus tachycardia

ventricular fibrillation

every other beat is a PVC

sinus rhythm with PACs

third-degree heart block

ventricular tachycardia

normal sinus rhythm

Name _____ Date _____

Lesson 11.3: Learning the Key Terms

Directions: Place the letter of the best definition next to each key term.

- | | |
|----------------------------------|--|
| _____ 1. aortic arch | A. the artery located at the fold of the elbow where the brachial pulse is detected |
| _____ 2. arteries | B. small, thin-walled vessels where oxygen and carbon dioxide gas exchange occurs |
| _____ 3. arterioles | C. circulation of oxygen-poor blood from the right ventricle, through the lungs, and returning to the left atrium with oxygen-rich blood |
| _____ 4. brachial artery | D. the thicker middle layer of a blood vessel that contains smooth muscle cells, elastic fibers, and collagen; its muscle cells are directed by the sympathetic nervous system to increase or decrease blood flow to tissues as needed |
| _____ 5. capillaries | E. the smallest veins; connect the capillaries with the larger systemic veins |
| _____ 6. capillary beds | F. the outermost layer of a blood vessel, composed mostly of fibrous connective tissue that supports and protects the vessel |
| _____ 7. carotid artery | G. vessels that carry blood away from the heart |
| _____ 8. coronary sinus | H. a short, broad vessel in the fetus that connects the left pulmonary artery with the descending aorta, allowing most of the blood to bypass the infant's lungs |
| _____ 9. ductus arteriosus | I. the artery located on the side of the neck, where the carotid pulse is felt |
| _____ 10. foramen ovale | J. microscopic arteries that connect with capillaries |
| _____ 11. precapillary sphincter | K. vessels that carry blood to the heart |
| _____ 12. pulmonary circulation | L. measurements of pulse and blood pressure |
| _____ 13. radial artery | M. a band of smooth muscle fibers that encircles the capillaries at the arteriole-capillary junctions and controls blood flow to the tissues |
| _____ 14. systemic circulation | N. circulation of oxygenated blood through the arteries, capillaries, and veins of the circulatory system, from the left ventricle to the right atrium |
| _____ 15. tunica externa | O. network of intertwined vessels formed by multiple capillaries |
| _____ 16. tunica intima | P. the curved portion of the aorta between the ascending and descending parts of the aorta |
| _____ 17. tunica media | Q. the artery located on the thumb side of the wrist, where the radial pulse is detected |
| _____ 18. veins | R. large venous channel between the left atrium and left ventricle on the posterior side of the heart that empties into the right atrium at the junction of the four chambers |
| _____ 19. venules | S. opening in the septal wall between the atria; normally present only in the fetus |
| _____ 20. vital signs | T. the innermost layer of a blood vessel, composed of a single layer of squamous epithelial cells over a sheet of connective tissue; its smooth, frictionless surface allows blood to flow smoothly through the vessel |

Lesson 11.3: Study Questions

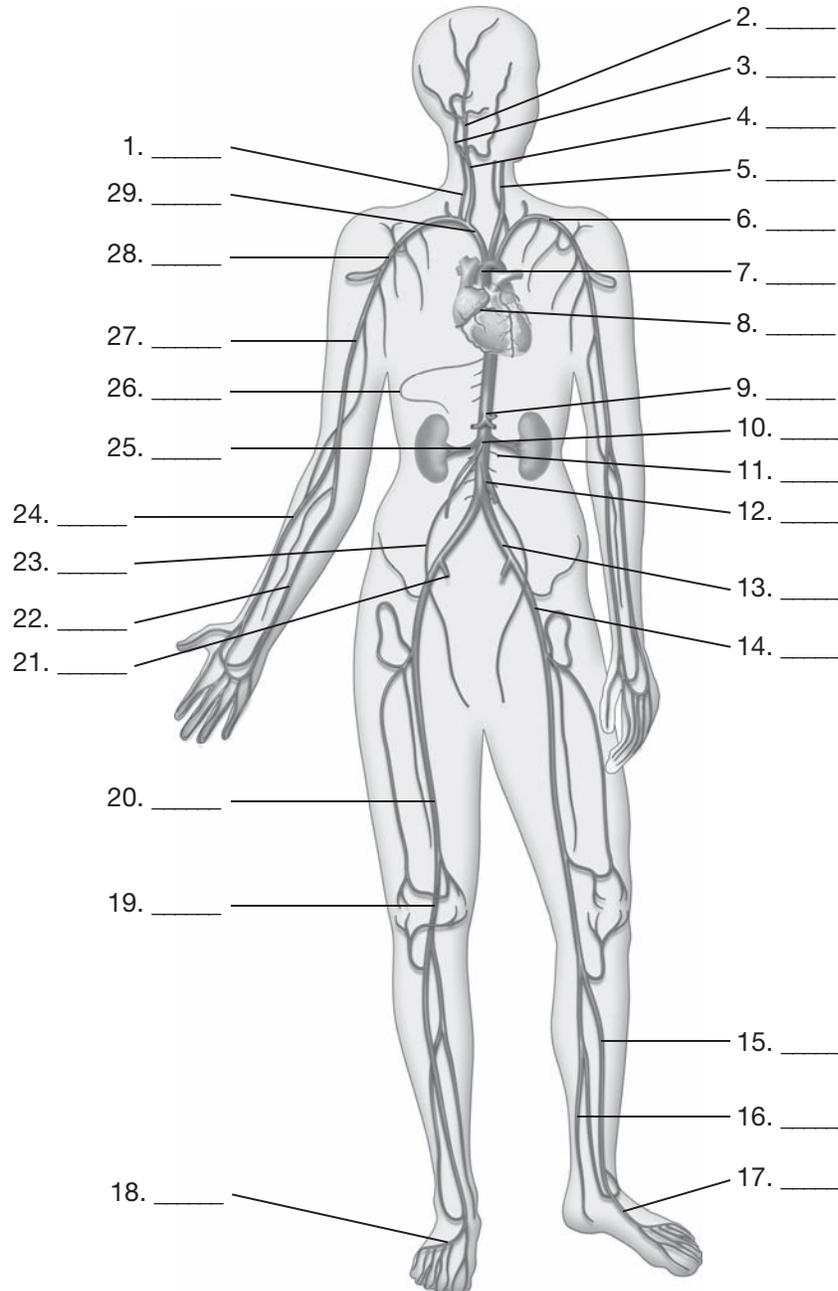
Directions: Answer the questions below on a separate sheet of paper. Studying the answers will help you prepare for the chapter test.

1. What are the three types of blood vessels that form a closed loop of tubes to carry blood from the heart to the rest of the body and back to the heart?
2. What are the three layers that compose blood vessels (with the exception of capillaries)?
3. In terms of function, what is the biggest difference between veins and arteries?
4. Why are artery walls thicker and more elastic than the walls of veins?
5. How does the venous system pump blood back to the heart?
6. Why are the capillaries called *exchange vessels*?
7. What is the function of the precapillary sphincter?
8. Through what two circuits does the heart pump blood to all parts of the body?
9. How do hot, humid days affect athletic performance and the heart?
10. What event ends the blood's journey through the systemic circulatory?
11. How does the heart receive oxygen?
12. What is the role of hepatic portal circulation?
13. Why is the process of fetal circulation necessary?
14. What two measurements are usually termed *vital signs*?
15. How should someone measure their pulse?
16. At what point is blood pressure taken?
17. How do systolic and diastolic blood pressure differ?
18. What is the optimal blood pressure for an adult?
19. Which type of cholesterol is "good" and which type is "bad?" Why is one considered better than the other?

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Lesson 11.3: Labeling the Arteries

Directions: Label the figure with the letter of the appropriate callouts from the list provided.



- | | | | |
|---------------------------|-------------------------------|-------------------------------|--------------------------------|
| A. anterior tibial artery | I. coronary artery | P. intercostal artery | W. radial artery |
| B. aorta | J. dorsalis pedis artery | Q. internal carotid artery | X. renal artery |
| C. arcuate artery | K. external carotid artery | R. internal iliac artery | Y. right common carotid artery |
| D. axillary artery | L. external iliac artery | S. left common carotid artery | Z. subclavian artery |
| E. brachial artery | M. femoral artery | T. lumbar artery | AA. superior mesenteric artery |
| F. brachiocephalic artery | N. gonadal artery | U. popliteal artery | BB. ulnar artery |
| G. celiac trunk | O. inferior mesenteric artery | V. posterior tibial artery | CC. vertebral artery |
| H. common iliac artery | | | |

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Lesson 11.3: Identifying Blood Vessels

Directions: Fill in the chart below with the letters of the corresponding vessel type, structure, and function. A vessel type, location, or function is provided for each item.

Figure 11.13 Structure and Function of Vessels		
Vessel Type	Structure	Function
Artery*	1. _____	2. _____
3. _____	thinner, three-walled vessel, mostly smooth muscle cells	4. _____
5. _____	single layer of epithelial cells	6. _____
7. _____	8. _____	transports blood from capillary to vein
Vein	9. _____	10. _____

*Exception: Pulmonary arteries carry deoxygenated blood.

- A. capillary
- B. venule
- C. arteriole
- D. thin-walled vessels bundled together to form a vein
- E. three-layered vessel (intima, media, adventitia); thick, elastic, muscular walls
- F. three-layered (intima, media, externa), thin-walled vessel with one-way valves
- G. gas/nutrient and waste-product exchange between blood and tissues
- H. transports blood from arteries to capillaries; acts to direct blood flow in the body
- I. transports oxygen-poor blood back to the heart
- J. transports oxygen-rich blood away from heart to arterioles; influenced by the sympathetic nervous system (contraction/dilation)

Name _____ Date _____

Lesson 11.4: Learning the Key Terms

Directions: Use the terms listed below to fill in the blanks of the sentences.

aneurysm	endocarditis	myocardial infarction	stroke
angina pectoris	heart murmurs	myocarditis	transient ischemic attack (TIA)
atherosclerosis	hypertension	palpitations	valvular stenosis
cardiomyopathy	ischemia	pericarditis	
coronary artery disease	mitral valve prolapse	peripheral vascular disease (PVD)	

1. Hardening of the arteries is named _____.
2. A sudden blockage of blood flow, or rupture of an artery in the brain, a(n) _____ causes brain cells to die from lack of oxygen.
3. The sensation of rapid heartbeat is known as _____.
4. Extra or unusual sounds heard by a stethoscope during a heartbeat, _____ may be harmless or indicative of a problem with one of the heart valves.
5. An incomplete closing of the mitral valve, _____ causes blood to flow backward into the left atrium when the left ventricle contracts.
6. A lack of blood flow, _____ is usually due to the narrowing of a blood vessel.
7. The abnormal ballooning of a blood vessel, usually an artery, a(n) _____ is due to a weakness in the wall of the vessel.
8. Narrowing of the heart valve due to stiff or fused valve cusps is called _____.
9. The term for inflammation of the pericardial sac that surrounds the heart is _____.
10. Commonly known as *heart attack*, _____ is tissue death that occurs in a segment of heart muscle from blockage of a coronary artery.
11. _____ is a narrowing of one or more of the coronary arteries due to a buildup of plaque.
12. Caused by an insufficient supply of blood to the heart, _____ is a condition characterized by severe, constricting pain or sensation of pressure in the chest, often radiating to the left arm.
13. _____ is a temporary lack of blood flow to the brain.
14. A condition that occurs when the force of blood against the arterial wall remains elevated for an extended period of time, _____ is also called *high blood pressure*.
15. _____ is heart failure caused by infection and weakening of the myocardium, or heart muscle.
16. _____ is inflammation of the myocardium, the middle layer of the heart.
17. _____ is a condition caused by a narrowing of the arteries in the legs.
18. _____ is inflammation of the innermost lining of the heart, including the inner surface of the chambers and the valves.

Lesson 11.4: Study Questions

Directions: Answer the questions below on a separate sheet of paper. Studying the answers will help you prepare for the chapter test.

1. Heart murmurs and valvular stenosis can be classified as which type of heart disease?
2. What is a heart murmur?
3. What does the suffix *-itis* mean?
4. Describe the symptoms of pericarditis.
5. What is endocarditis and what makes this disease particularly dangerous?
6. Describe heart failure.
7. What is the most common cause of heart failure?
8. An aneurysm is an abnormal ballooning of a blood vessel. Where do they most commonly occur?
9. What causes coronary artery disease?
10. Why is LDL one of the main causes of plaque formation in a blood vessel?
11. What can be done to treat or alleviate angina pectoris?
12. What is the clinical name for a heart attack?
13. How do the symptoms of coronary heart disease vary between men and women?
14. What kind of treatment should heart attack patients receive within 30 minutes of their arrival in the emergency room?
15. What ratio of US people have hypertension but don't know it?
16. What are some risk factors for developing hypertension?
17. What characterizes peripheral vascular disease (PVD)?
18. What are the two types of stroke?

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Lesson 11.4: Family History of Cardiovascular Indicators

Directions: Fill out the table of cardiovascular activities below, which are indicators that can affect strokes and heart problems. Identify various family members such as your parents, grandparents, uncles, and aunts—include as many relatives as you like (this could be important to your future health). Next to each relative's name, write yes or no to indicate whether or not they have, or had, the particular disease and if they participated in regular cardiovascular exercise. A sample is provided for your reference. Once you have finished filling out the chart, analyze your results and answer the questions below.

Relative	High blood pressure	Diabetes	High cholesterol	Cardiovascular exercise	History of stroke
Aunt Whitney	no	yes	no	yes	no

1. Do your results indicate a pattern, or family history of any particular disease or condition?

2. If you had a family history of diabetes, what lifestyle choices could you make to avoid developing this disease yourself?

3. How does cardiovascular exercise affect your family members' health?

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Chapter 11: Cardiovascular System Statistics

Directions: Identify the proper number or percentage associated with each of the cardiovascular system items listed below. Write the answer in the blanks provided; note that some answers require more than one number.

- _____ 1. chambers of heart
- _____ 2. heartbeats per minute
- _____ 3. heart valves
- _____ 4. blood pumped per minute by the heart
- _____ 5. gallons of blood pumped by the heart per day
- _____ 6. blood vessels in the body
- _____ 7. duration of one cardiac cycle
- _____ 8. percentage of the body's blood in the venous system (veins)
- _____ 9. percentage of blood flow going to muscles at rest
- _____ 10. percentage of blood flow going to working muscles during exercise
- _____ 11. Body Mass Index, healthy weight range
- _____ 12. BMI classified as thin
- _____ 13. BMI classified as overweight
- _____ 14. BMI classified as obese
- _____ 15. optimal blood pressure
- _____ 16. healthy overall cholesterol
- _____ 17. healthy high density lipoprotein (HDL)
- _____ 18. ratio of deaths in the US caused by heart disease (for example, one in how many?)
- _____ 19. deaths per day from heart disease in the US
- _____ 20. US adults with high blood pressure and unaware of it

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Chapter 11 Lab Investigation: The Heart

Purpose

In this activity you will identify and compare heart rates before and after exercise.

Background

You can measure your pulse by counting the number of beats for one minute. Use the fingertips of your index and third fingers to apply light pressure to any point where an artery comes close to your skin. Following are three frequently used areas of the body to obtain a pulse:

- radial artery—with your palm facing upward, feel for your pulse on the thumb side of your wrist
- carotid artery—on the side of your neck, feel for your pulse to the right of your trachea (windpipe)
- brachial artery—at the fold of your elbow, feel for your pulse along the inner portion of your arm

Materials

your textbook, a timer, your body

Procedure

Exercise

1. Count your number of heartbeats in one minute. Do this three times, find the average, and then record your average pulse rate.

first minute: _____

+

second minute: _____

+

third minute: _____

=

total pulse _____

divided by 3 = your at-rest pulse rate: _____

2. Do 25 vigorous jumping jacks. Immediately afterward, sit down and count your pulse rate for one minute. Continue to record your pulse each minute until your pulse rate returns to its at-rest rate.

minute 1: _____

minute 2: _____

minute 3: _____

(continue as needed)

number of minutes required for pulse rate to return to its at-rest rate: _____

3. Run in place for two minutes. Immediately afterward, sit down and count your pulse rate for one minute. Continue to record your pulse each minute until your pulse rate returns to its at-rest rate.

minute 1: _____

minute 2: _____

minute 3: _____

(continue as needed)

number of minutes required for pulse rate to return to its at-rest rate: _____

Conclusions

1. What is bradycardia?

2. Did your resting heart rate qualify as bradycardia?

3. What is tachycardia?

4. Did either of your exercising heart rates qualify as tachycardia?

5. Compare your pulse rate one minute after doing the jumping jacks to your pulse rate one minute after running in place. Is there a difference between these numbers?

6. Which type of exercise caused a faster pulse rate?

7. Why do you think one type of exercise causes a faster pulse rate than another type of exercise?

8. Starting with the blood returning to the heart from the body, arrange the following heart components in the order that the blood would move through them: lungs, left ventricle, right atrium, left atrium, right ventricle, mitral valve, tricuspid valve, aortic semilunar valve, pulmonary semilunar valve.

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Chapter 11 Practice Test

Completion: Carefully read the following statements. Write the term that completes the statement in the spaces provided.

1. The heart is located in the thoracic cavity under the _____.
2. A(n) _____ is an irregular heartbeat or rhythm.
3. _____ are often called *exchange vessels*.
4. _____ is the "good" kind of cholesterol.
5. The sensation of rapid heartbeat is known as _____.

True/False: Indicate whether each statement below is true or false by circling either T or F.

- T F 6. The cardiovascular system is also known as the *circulatory system*.
- T F 7. A defibrillator is a device that records the electrical activity of the heart.
- T F 8. The aorta is the largest artery in the body.
- T F 9. Blood pressure and pulse measurements are called the *vital signs*.
- T F 10. The most common cause of heart failure is stroke.

Multiple Choice: Circle the correct answer.

11. The ____ is the middle layer of the heart, which makes up about two-thirds of the heart muscle.

A. endocardium	C. myocardium
B. epicardium	D. pericardial cavity
12. Which of the following is a life-threatening arrhythmia?

A. bradycardia	C. tachycardia
B. premature atrial contractions (PACs)	D. ventricular tachycardia (VT)
13. Blood pressure is measured at the _____.

A. brachial artery	C. coronary artery
B. carotid artery	D. radial artery
14. What is a desirable level of low-density lipoprotein (LDL) in the body?

A. more than 40 mg/dL	C. less than 100 mg/dL
B. less than 200 mg/dL	D. less than 50 mg/dL
15. In which of the following do aneurysms *not* commonly occur?

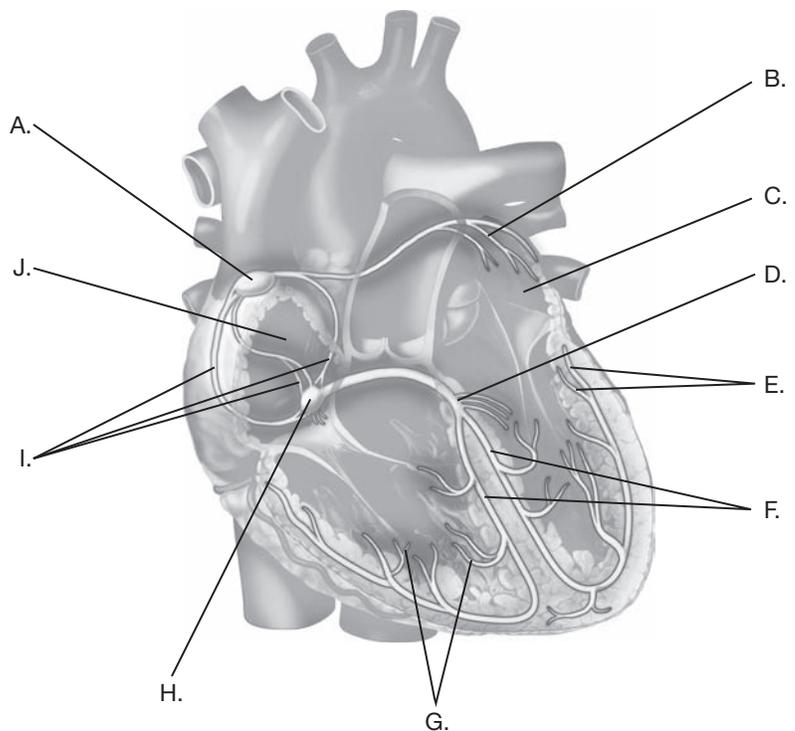
A. the aorta	C. the artery behind the knee
B. the lungs	D. the intestine

Matching: Match each key term to its definition by writing the letter of the definition in the space provided.

- | | |
|-------------------------------------|---|
| _____ 16. cardiac output | A. the period of relaxation in the heart when the chambers are filling with blood |
| _____ 17. arteries | B. the amount of blood pumped from the heart per minute |
| _____ 18. aorta | C. a small mass of specialized tissue located in the right atrium that normally acts as the pacemaker of the heart |
| _____ 19. aneurysm | D. inflammation of the innermost lining of the heart, including the inner surface of the chambers and the valves |
| _____ 20. baroreceptors | E. vessels that carry blood away from the heart |
| _____ 21. endocarditis | F. microscopic arteries that connect with capillaries |
| _____ 22. arterioles | G. part of the impulse conducting network of the heart that rapidly transmits impulses throughout the ventricles, causing ventricular contraction |
| _____ 23. sinoatrial node (SA node) | H. a large arterial trunk that arises from the base of the left ventricle and channels blood from the heart into other arteries throughout the body |
| _____ 24. Purkinje fibers | I. the abnormal ballooning of a blood vessel, usually an artery, due to a weakness in the wall of the vessel |
| _____ 25. diastole | J. pressure-sensitive nerve endings in the atrium, aortic arch, and carotid arteries |

Art Labeling: Locate each of the following items on the drawing by placing the corresponding letter on the blanks provided.

- _____ 26. Purkinje fibers
- _____ 27. left atrium
- _____ 28. right and left bundle branches
- _____ 29. intermodal pathways
- _____ 30. atrioventricular (AV) node
- _____ 31. bundle of His
- _____ 32. right atrium
- _____ 33. Bachmann's bundle
- _____ 34. sinoatrial (SA) node
- _____ 35. Purkinje fibers



Short Answer: Answer the following questions using what you have learned in this chapter.

36. What is the difference between "good" and "bad" cholesterol?
37. What three different mechanisms regulate the heart? Where are these mechanisms located?