

Vascular Ultrasound Vocabulary Quiz

Part 1: Introduction to the Vascular System & Early Cerebrovascular

Chapters 1–5 | Kupinski, *Diagnostic Medical Sonography: The Vascular System*, 3rd Ed.

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Student Name: _____

Date: _____

Instructions: Read each definition or description carefully. Select the **one best answer** (A, B, C, or D) that matches the term described. Write your answer in the space provided after each question.

Chapter 1: Vascular Anatomy

1. The innermost layer of a blood vessel wall, composed of a single layer of endothelial cells on connective tissue, providing a smooth surface for blood flow.

- A. Tunica Media
- B. Tunica Adventitia
- C. Tunica Intima
- D. Endothelium

Answer: _____

2. The point where the common carotid artery divides into the internal and external carotid arteries, typically at the upper border of the thyroid cartilage.

- A. Carotid Bulb
- B. Circle of Willis
- C. Carotid Bifurcation
- D. Aortic Arch

Answer: _____

3. A ring-like arrangement of arteries at the base of the brain that provides collateral circulation to maintain brain blood flow if one vessel is blocked.

- A. Basilar Artery
- B. Aortic Arch
- C. Carotid Bifurcation
- D. Circle of Willis

Answer: _____

4. A branch of the common carotid artery that supplies the brain and eyes and has no extracranial branches.

- A. External Carotid Artery
- B. Internal Carotid Artery
- C. Vertebral Artery
- D. Common Carotid Artery

Answer: _____

5. The first and largest branch of the aortic arch, dividing into the right common carotid and right subclavian arteries.

- A. Subclavian Artery
- B. Celiac Artery
- C. Common Carotid Artery
- D. Brachiocephalic Artery

Answer: _____

6. Formed by the junction of the splenic and superior mesenteric veins, this vessel carries nutrient-rich blood from the digestive organs to the liver.

- A. Hepatic Veins
- B. Inferior Vena Cava
- C. Portal Vein
- D. Superior Mesenteric Artery

Answer: _____

7. The longest vein in the body, ascending medially from the foot to the saphenofemoral junction.

- A. Small Saphenous Vein
- B. Femoral Vein
- C. Basilic Vein
- D. Great Saphenous Vein

Answer: _____

8. Veins that connect the superficial and deep venous systems by penetrating the deep fascia, with valves directing flow from superficial to deep.

- A. Venae Comitantes
- B. Perforating Veins
- C. Saphenofemoral Junction
- D. Venous Valves

Answer: _____

9. The continuation of the superficial femoral artery as it passes behind the knee in the popliteal fossa, then bifurcating into the anterior tibial artery and tibial-peroneal trunk.

- A. Posterior Tibial Artery
- B. Profunda Femoris Artery
- C. Popliteal Artery
- D. Anterior Tibial Artery

Answer: _____

10. Bicuspid structures in veins formed by projections of the tunica intima that ensure one-way blood flow toward the heart, especially in the legs.

- A. Valve Sinus
- B. Perforating Veins
- C. Venous Valve
- D. Compression Stockings

Answer: _____

Chapter 2: Arterial Physiology

11. States that flow is directly proportional to pressure and the fourth power of the radius, and inversely proportional to viscosity and vessel length. Doubling the radius increases flow 16 times.

- A. Bernoulli Principle
- B. Reynolds Number
- C. Poiseuille's Law
- D. Starling Equilibrium

Answer: _____

12. A dimensionless number that predicts whether flow will be laminar or turbulent, with a threshold value of approximately 2,000.

- A. Pulsatility Index
- B. Reynolds Number
- C. Poiseuille's Law
- D. Bernoulli Principle

Answer: _____

13. Smooth, orderly flow moving in parallel layers, with the fastest layer at the center of the vessel and the slowest layer near the wall.

- A. Turbulent Flow
- B. Parabolic Flow Profile
- C. Laminar Flow
- D. Phasic Venous Flow

Answer: _____

14. The degree of vessel narrowing (approximately 50% diameter reduction or 75% cross-sectional area reduction) at which pressure and flow begin to be significantly affected.

- A. Near Occlusion
- B. Collateral Arteries
- C. Resistance
- D. Critical Stenosis

Answer: _____

15. A flow pattern with continuous forward (antegrade) flow throughout the cardiac cycle, seen in vessels supplying organs that require constant perfusion, such as the ICA and renal arteries.

- A. High-Resistance Flow
- B. Turbulent Flow
- C. Low-Resistance Flow
- D. Continuous Venous Flow

Answer: _____

16. The ability of arteries to expand and contract with pressure changes, measured as the change in volume divided by the change in pressure. It decreases with age.

- A. Vasomotor Tone
- B. Venous Capacitance
- C. Autoregulation
- D. Arterial Compliance

Answer: _____

17. Preexisting vascular pathways that enlarge when a main artery becomes stenotic or occluded, consisting of stem arteries, midzone vessels, and reentry arteries.

- A. Resistances in Parallel
- B. Collateral Arteries
- C. Perforating Veins
- D. Resistances in Series

Answer: _____

Chapter 3: Venous Physiology

18. The ability of veins to hold large volumes of blood. Veins contain approximately two-thirds of the body's total blood volume and serve as a reservoir.

- A. Arterial Compliance
- B. Transmural Pressure
- C. Venous Capacitance
- D. Osmotic Pressure

Answer: _____

19. The mechanism by which contraction of the gastrocnemius and soleus muscles compresses deep veins, propelling blood upward toward the heart with pressures exceeding 200 mmHg.

- A. Hydraulic Filter
- B. Calf Muscle Pump
- C. Vasomotor Tone
- D. Compression Stockings

Answer: _____

20. Abnormal retrograde (backward) flow in veins due to incompetent valves, leading to venous hypertension, edema, skin changes, and potentially ulceration.

- A. Primary Varicose Veins
- B. Venous Stasis Ulcer
- C. Venous Insufficiency
- D. Edema

Answer: _____

21. Describes the balance of forces governing fluid movement across capillary walls, where intracapillary pressure and interstitial osmotic pressure push fluid out, while capillary osmotic pressure pulls fluid in.

- A. Osmotic Pressure
- B. Transmural Pressure
- C. Bernoulli Principle
- D. Starling Equilibrium

Answer: _____

Chapters 4–5: Cerebrovascular

22. An increase in the width of the Doppler frequency spectrum, appearing as "filling in" of the clear window under the systolic peak, indicating disturbed or turbulent flow.

- A. Color Aliasing
- B. Mosaic Color Pattern
- C. Spectral Broadening
- D. Spectral Window

Answer: _____

23. The maximum velocity measured during systole. This is the primary parameter used to classify the severity of carotid stenosis.

- A. End Diastolic Velocity
- B. Mean Flow Velocity
- C. Pulsatility Index
- D. Peak Systolic Velocity

Answer: _____

24. Retrograde (reversed) flow in the vertebral artery caused by a proximal subclavian artery stenosis, where blood is diverted away from the brain to supply the arm.

- A. ECA Collateralization
- B. Subclavian Steal Phenomenon
- C. Latent Steal
- D. Carotid Thrombosis

Answer: _____

25. A non-atherosclerotic arterial disease causing alternating areas of stenosis and dilation, producing a characteristic "string of beads" appearance. Most common in young to middle-aged women.

- A. Heterogeneous Plaque
- B. Carotid Aneurysm
- C. Fibromuscular Dysplasia
- D. Intraplaque Hemorrhage

Answer: _____

Score:

/ 25

Percentage:

%

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