

# Blood Vessels

EQ: How does the structure of an artery help with its function? A vein?

- I. Blood Vessels Basics
  - a. We have a closed system
  - b. Heart – arteries – arterioles – capillaries – venules – veins – heart
  - c. Capillaries are the smallest of blood vessels and the functional unit of the circulatory system
- II. Blood Vessels
  - a. 3 Layers
    - i. Tunica externa: outermost layer (loose ct)
    - ii. Tunica media: middle layer (smooth muscle)
    - iii. Tunica intima: innermost layer, simple squamous epi (endothelium) & ct.  
Capillaries are all endothelium
  - b. Arteries: Large arteries expand when blood surges into them. Carry blood **away** from the heart
  - c. Capillaries: No cell in the body is no more than 0.1 mm from a capillary (60,000 miles of them)
  - d. Veins: Carry blood **to** the heart
    - i. Have one-way valves
    - ii. Low blood pressure
- III. Main Arteries
  - a. Aortic Arch
    - i. All main arteries arise from the aorta
    - ii. The aorta arches to the left, to clear the pulmonary arteries – the aortic arch
    - iii. The “big three”
      1. Brachiocephalic trunk (right Common carotid & r subclavian)
      2. Left common carotid artery
      3. Left Subclavian artery
  - b. Main Head Arteries
    - i. Superficial Temporal artery
    - ii. Internal Carotid artery
    - iii. Facial artery
    - iv. External Carotid artery
    - v. Lingual artery
    - vi. Vertebral artery
    - vii. Common Carotid artery
    - viii. Subclavian artery
    - ix. Brachiocephalic artery
    - x. Occipital artery
  - c. Main Arteries of the Arm
    - i. Axillary artery
    - ii. Brachial artery
    - iii. Radial artery
    - iv. Ulnar artery
  - d. Descending Aorta Branches
    - i. Celiac trunk – just below the diaphragm
    - ii. Superior mesenteric artery – the guts
    - iii. Renal arteries – the kidneys

- iv. Gonadal arteries – gonads
    - v. Inferior mesenteric artery – large intestine
    - vi. Right & left common iliac arteries – divide for legs
  - e. Main Leg Arteries
    - i. Femoral artery
    - ii. Popliteal artery
    - iii. Anterior/Posterior tibial artery
    - iv. Fibular artery
- IV. Main Veins
  - a. Top 2
    - i. Superior Vena Cava
      - 1. The SVC drains the head and arms...
    - ii. Inferior Vena Cava
      - 1. The IVC drains the lower body
  - b. Vein Drain to SVC
    - i. Brachiocephalic Veins
      - 1. Internal Jugular Vein
        - a. Facial Vein
    - ii. Subclavian
      - 1. External Jugular Vein
        - a. Superficial Temporal Vein
    - iii. Axillary Vein
  - c. Veins in the Arm
    - i. Cephalic Vein
    - ii. Basilic Vein
    - iii. Ulnar Vein
    - iv. Radial Vein
  - d. Vein Drain to IVC
    - i. Hepatic Veins – from liver
    - ii. Renal Veins – from kidney
    - iii. Gonadal Veins
    - iv. Common Iliac Veins
    - v. External Iliac Veins
    - vi. Internal Iliac Veins
    - vii. Femoral Veins
    - viii. Popliteal Veins