

The Cardiovascular System: Blood Vessels

I. Overview of blood vessels

- A. Pathway of blood**
- B. Oxygenation**
 - 1. Systemic circulation
 - 2. Pulmonary circulation
- C. Layers of vessel walls**
 - 1. Tunica intima
 - a. Endothelium
 - b. Subendothelial layer
 - 2. Tunica media
 - a. Internal and external elastic lamina
 - 3. Tunica externa
 - a. Vasa vasorum

II. Arterial system

- A. Elastic arteries**
 - 1. Function
 - 2. Structure
- B. Muscular arteries**
 - 1. Function
 - 2. Structure
- C. Arterioles**
 - 1. Function
 - 2. Structure

III. Capillaries

- A. Function**
- B. Structure**
 - 1. Pericytes
- C. Capillary beds**
 - 1. Terminal arteriole
 - 2. Postcapillary venule
 - 3. True capillaries
 - a. Precapillary sphincter
 - 4. Vascular shunt
 - a. Metarteriole
 - b. Thoroughfare channel

IV. Venous system

- A. Venules**
 - 1. Function
 - 2. Structure
- B. Veins**
 - 1. Function
 - 2. Structure
 - a. Venous valves

V. Major blood vessels of the body

A. Major veins of the body

- 1. Pulmonary circulation**
 - a. Pulmonary veins**
- 2. Systemic circulation**
 - a. Superior vena cava**
 - i. Brachiocephalic veins**
 - ii. Internal jugular veins**
 - iii. Subclavian veins**
 - b. Inferior vena cava**
 - i. Common iliac veins**
 - c. Veins of the brain**
 - i. Superior and inferior sagittal sinuses**
 - ii. Straight and transverse sinuses**
 - iii. Sigmoid sinuses and internal jugular veins**
 - d. Veins of the head and neck**
 - i. Facial veins**
 - ii. Occipital veins and external jugular veins**
 - e. Veins of the thorax**
 - i. Azygos vein**
 - ii. Intercostal veins**
 - f. Veins of the upper limbs**
 - i. Radial and ulnar veins**
 - ii. Brachial veins**
 - iii. Cephalic and basilic veins**
 - iv. Median cubital veins**
 - v. Axillary veins**
 - g. Veins of the abdomen**
 - i. Suprarenal veins**
 - ii. Renal veins**
 - iii. Gonadal (testicular and ovarian) veins**
 - h. Hepatic portal system**
 - i. Hepatic portal vein**
 - ii. Superior mesenteric vein**
 - iii. Splenic vein**
 - iv. Inferior mesenteric vein**
 - v. Hepatic veins**
 - vi. Gastric and ileocolic veins**
 - i. Veins of the pelvis**
 - i. Internal iliac veins**
 - ii. External iliac veins**
 - j. Veins of the lower limbs**
 - i. Fibular veins**
 - ii. Anterior and posterior tibial veins**
 - iii. Popliteal veins**
 - iv. Femoral veins**
 - v. Great saphenous vein**

B. Major arteries of the body

1. Pulmonary circulation

- a. Pulmonary trunk**
- b. Pulmonary arteries**

2. Systemic circulation

a. Aorta

i. Ascending aorta

ii. Aortic arch

A. Brachiocephalic trunk

1. Right common carotid artery

2. Right subclavian artery

B. Left common carotid artery

C. Left subclavian artery

iii. Descending aorta

iv. Abdominal aorta

v. Common iliac arteries

b. Arteries of the head and neck

i. Common carotid arteries

ii. External and internal carotid arteries

iii. Facial arteries

iv. Occipital arteries

v. Superficial temporal arteries

c. Arteries of the brain

i. Vertebral arteries

ii. Basilar artery

iii. Posterior cerebral arteries

iv. Circle of Willis

A. Anterior and posterior communicating arteries

d. Arteries of the thorax

i. Internal thoracic arteries

e. Arteries of the upper limbs

i. Axillary arteries

ii. Brachial arteries

iii. Radial and ulnar arteries

f. Arteries of the abdomen

i. Celiac trunk

ii. Gastric, common hepatic, and splenic arteries

iii. Superior mesenteric artery

iv. Ileocolic artery

v. Renal, suprarenal, and gonadal (testicular and ovarian) arteries

vi. Inferior mesenteric artery

g. Arteries of the pelvis

i. Internal and external iliac arteries

h. Arteries of the lower limbs

i. Femoral and popliteal arteries

ii. Anterior tibial, posterior tibial, and fibular arteries