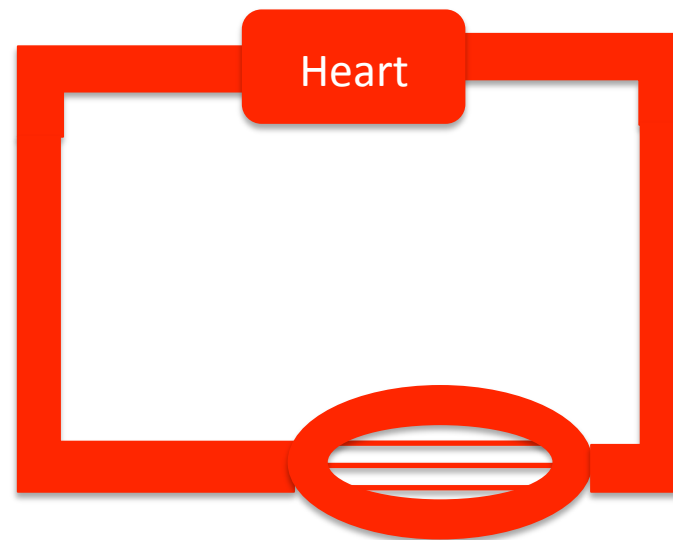


Comparative Anatomy of Vertebrate Circulatory Systems

A. A closed circulatory system

1. Definition

- a. Distinct blood versus interstitial fluid
- b. Blood contained within vessels
- c. Heart pumps blood through vessels
- d. Material exchanged between blood and interstitial fluid



Interstitial Fluid

Comparative Anatomy of Vertebrate Circulatory Systems

- A. A closed circulatory system
 - 2. Structure-function relationship
 - a. Can generate more pressure (hydrostatic pressure)
 - b. Can meet higher metabolic demands

Comparative Anatomy of Vertebrate Circulatory Systems

B. Important Terms

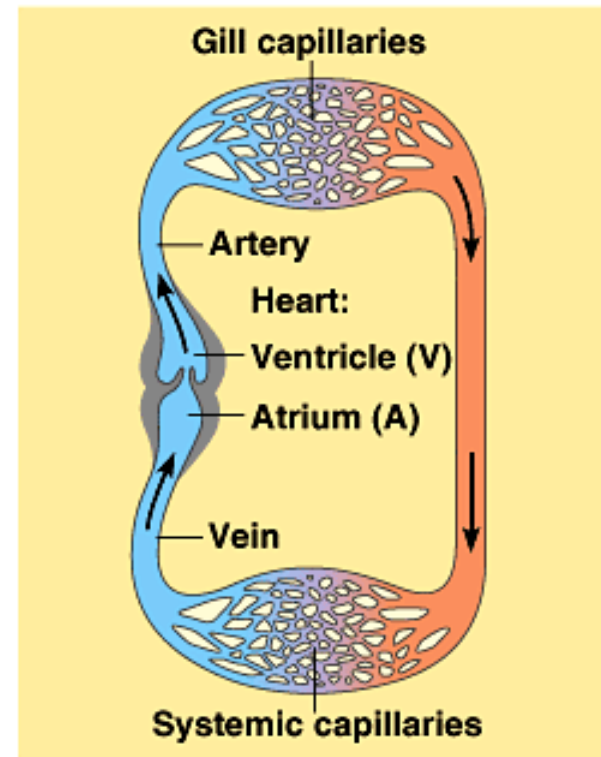
1. Heart
 - a. Atria (atrium)
 - b. Ventricles
2. Blood Vessels
 - a. Arteries
 - b. Veins
 - c. Capillaries
 - i. Gill capillaries
 - ii. Pulmonary Capillaries
 - iii. Skin capillaries
 - iv. Systemic Capillaries
3. Circulation
 - a. Gill circulation
 - b. Pulmocutaneous circulation
 - c. Pulmonary circulation
 - d. Systemic circulation

Comparative Anatomy of Vertebrate Circulatory Systems

C. Circulatory Systems

1. Fish

- a. 2 chamber heart
- b. 1 circuit for blood flow
- c. Blood picks up oxygen in gills
- d. Low pressure to deliver oxygen to the organs



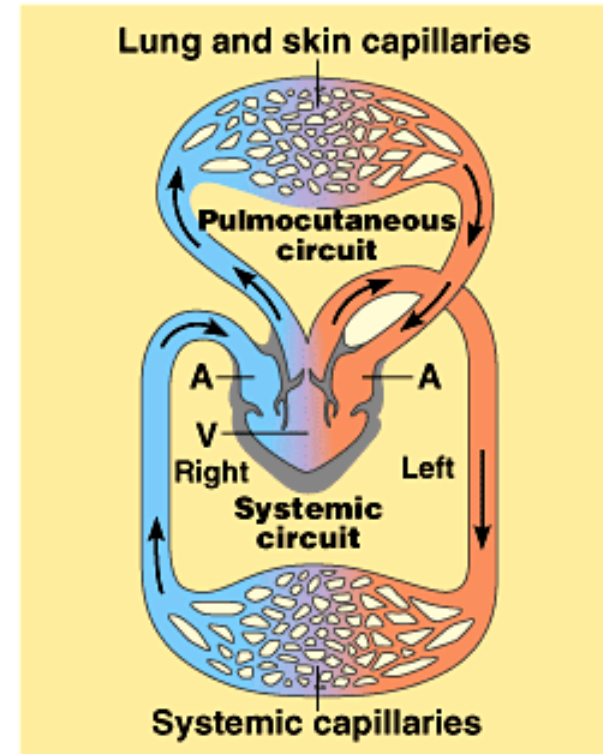
(a) Fish

Comparative Anatomy of Vertebrate Circulatory Systems

C. Circulatory Systems

2. Amphibians

- a. 3 chamber heart
- b. 2 circuits for blood flow
- c. Blood picks up oxygen in lung and skin
- d. Some mixing of blood in ventricle
- e. Higher pressure for oxygen delivery to organs



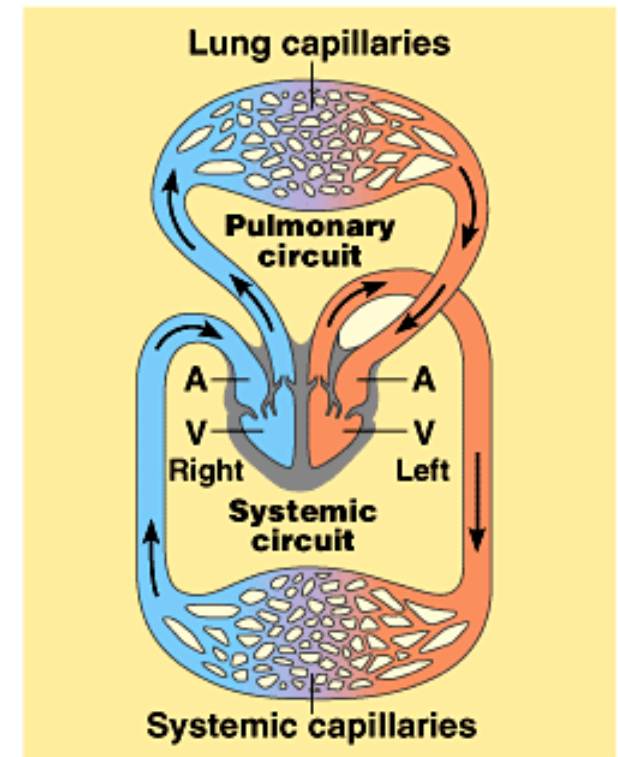
(b) Amphibian

Comparative Anatomy of Vertebrate Circulatory Systems

C. Circulatory Systems

3. Mammals

- a. 4 chamber heart
- b. 2 circuits for blood flow
- c. Blood picks up oxygen in lungs
- d. No mixing of blood in ventricles
- e. Higher pressure to deliver oxygen to the organs, which is essential to meet the metabolic demands



(c) Mammal