



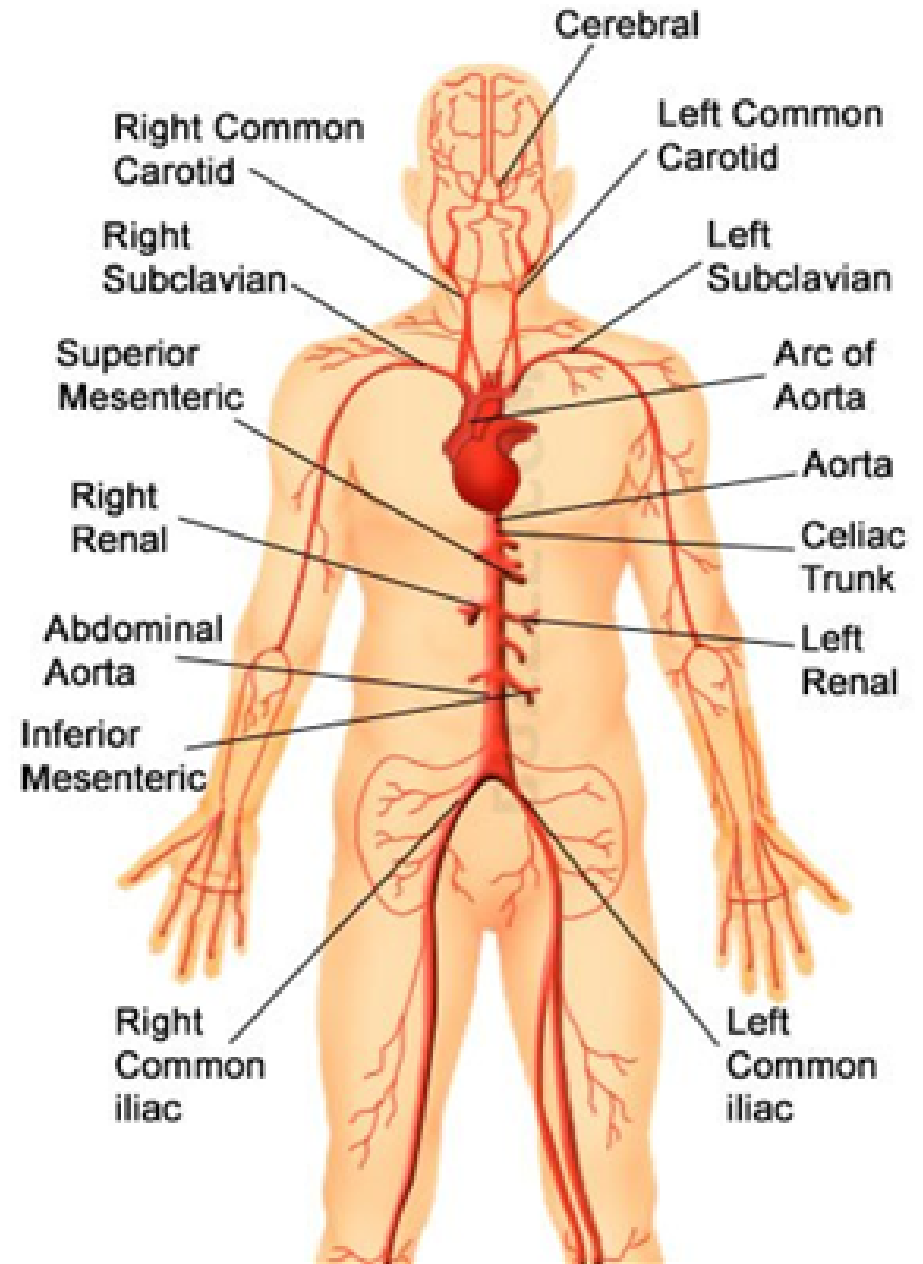
Anatomy of Blood Vessels

Function of Vessels

- Transport blood and its contents
- Carry out exchange of gases in the pulmonary capillaries and exchange of gases plus nutrients for waste at the systemic capillaries
- Regulate blood pressure
- Direct blood flow to those systemic tissues that most require it at the moment

Arteries

- Arteries - transport blood away from the heart
- Elasticity allows arteries to expand when heart contracts and recoil when heart rests



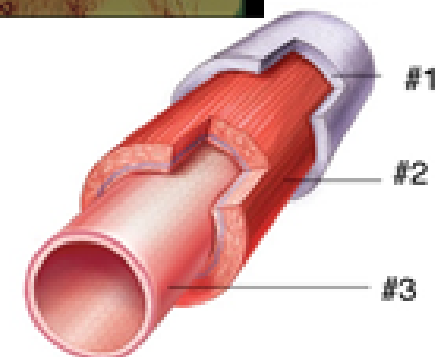
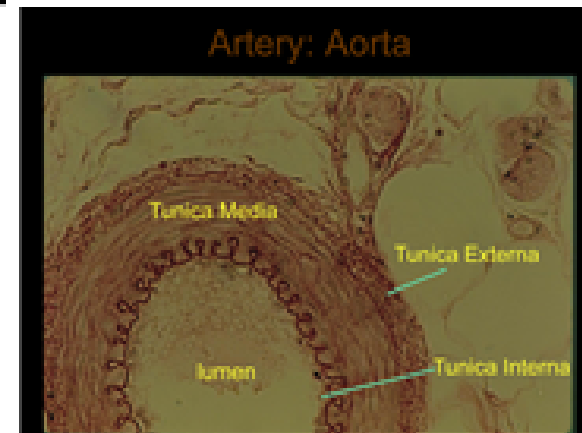
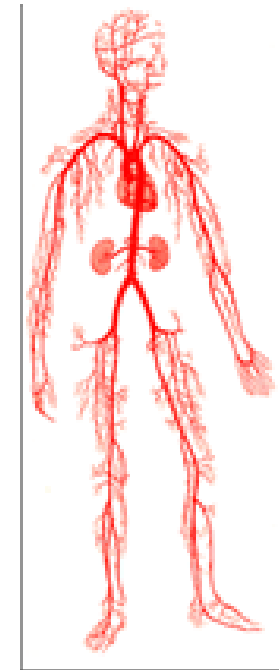
Arteries

- Thick strong walls composed of three layers;

1. tunica externa - outer connective tissue layer composed of elastic and collagen fibers

2. tunica media - thick middle layer of smooth muscle and elastic fibers

3. tunica interna - endothelium layer with a basement membrane

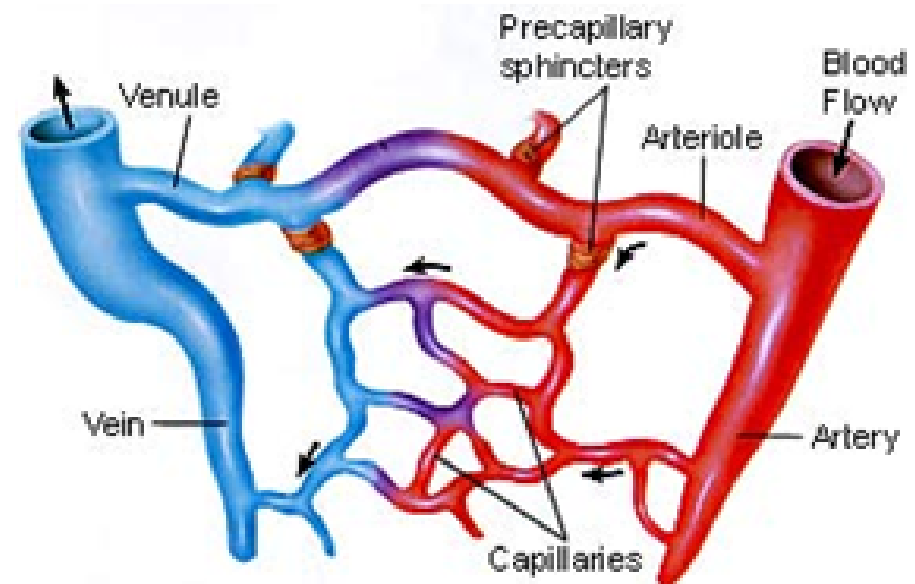
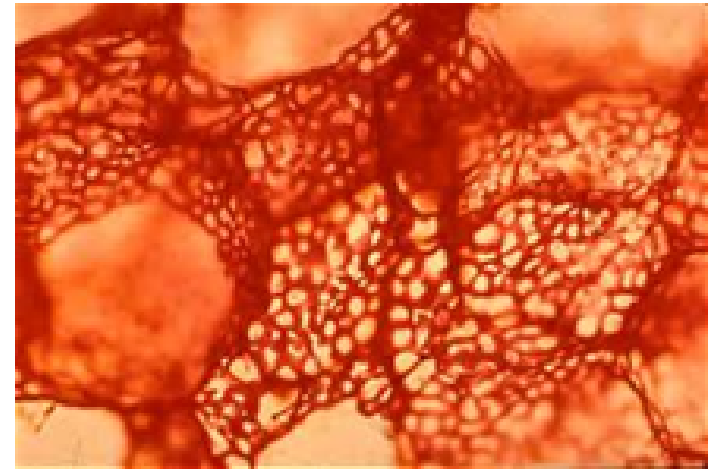


Arterioles

- small arteries just visible to naked eye
- composed mostly of smooth muscle
- affect blood pressure
- the greater number of vessels contract - the higher the resistance to blood flow
- the greater number of vessels dilated the lower the resistance to blood flow

Capillaries

- branched from arterioles
- very narrow
- capillary beds are present in all regions of the body
- place of exchange of nutrient and waste molecules



Veins and Venules

- return blood from the capillary beds to the heart
- very thin
- some have valves - to keep blood flowing in the same direction
- more than half of the total blood volume is located in the veins / venules at all times

