

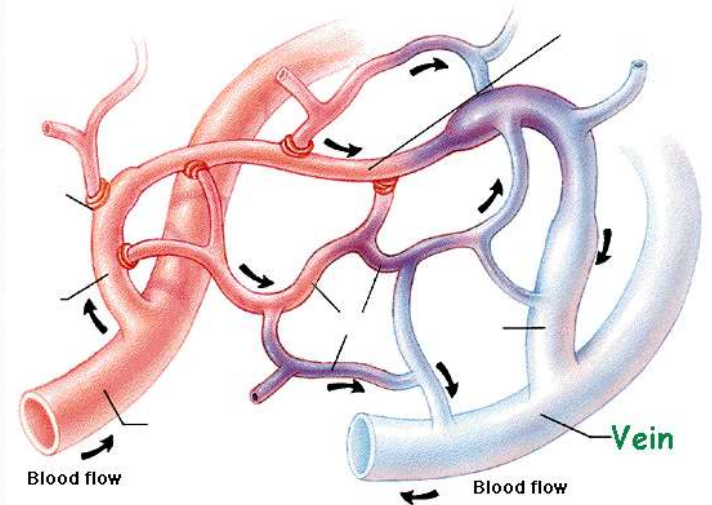
Blood Vessels



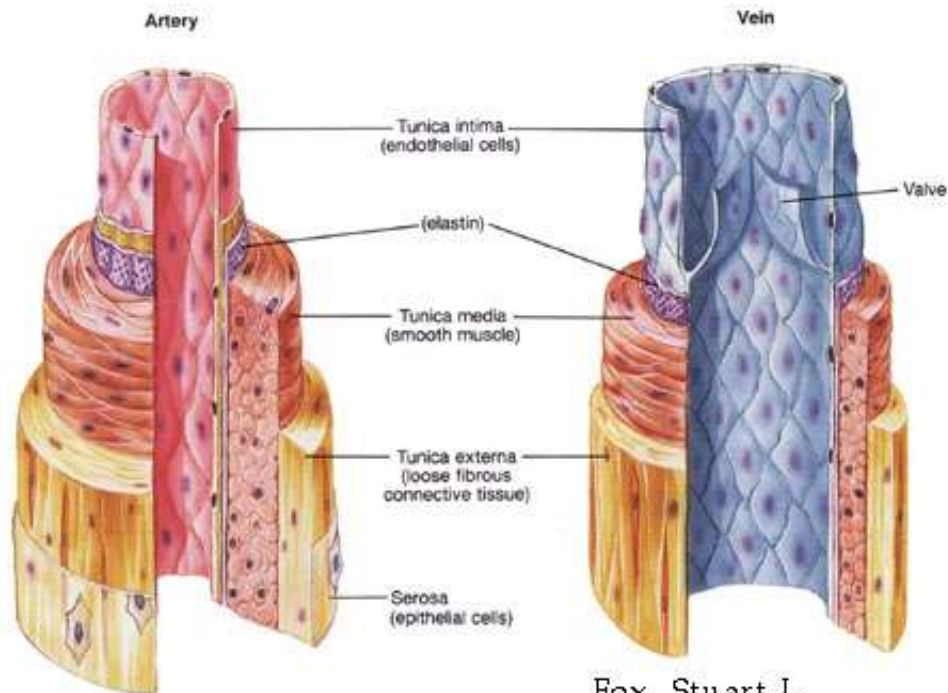
EQ: How does the structure of an artery help with its function? A vein?

Blood Vessels

- We have a **closed** system
- Heart – arteries – arterioles – capillaries – venules – veins – heart
- Capillaries are the smallest of blood vessels and the **functional unit** of the circulatory system



3 Layers

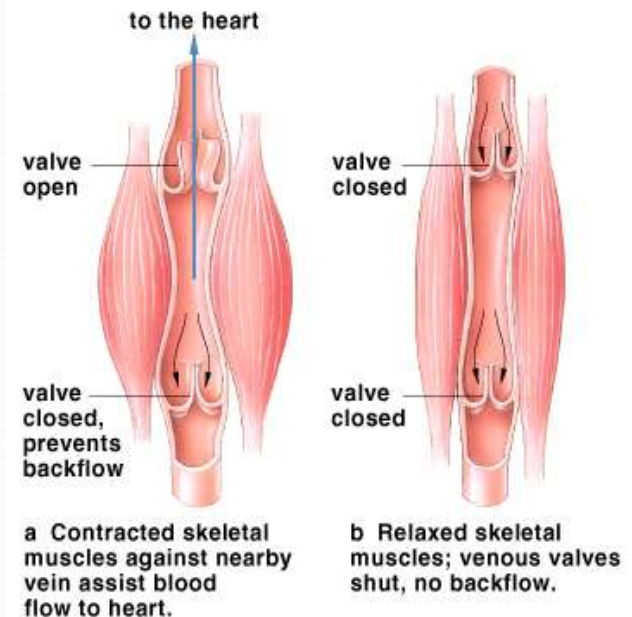


Fox, Stuart I.
Human Physiology 4th
Brown Publishers

1. Tunica externa: outermost layer (loose ct)
2. Tunica media: middle layer (smooth muscle)
3. Tunica intima: innermost layer, simple squamous epi (endothelium) & ct. Capillaries are all endothelium

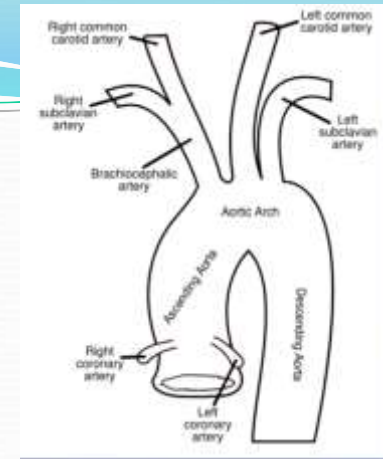
Vessels

- Arteries: Large arteries expand when blood surges into them. Carry blood **away** from the heart
- Capillaries: No cell in the body is no more than 0.1 mm from a capillary (60,000 miles of them)
- Veins: Carry blood **to** the heart
 - Have one-way valves
 - Low blood pressure



Aortic Arch

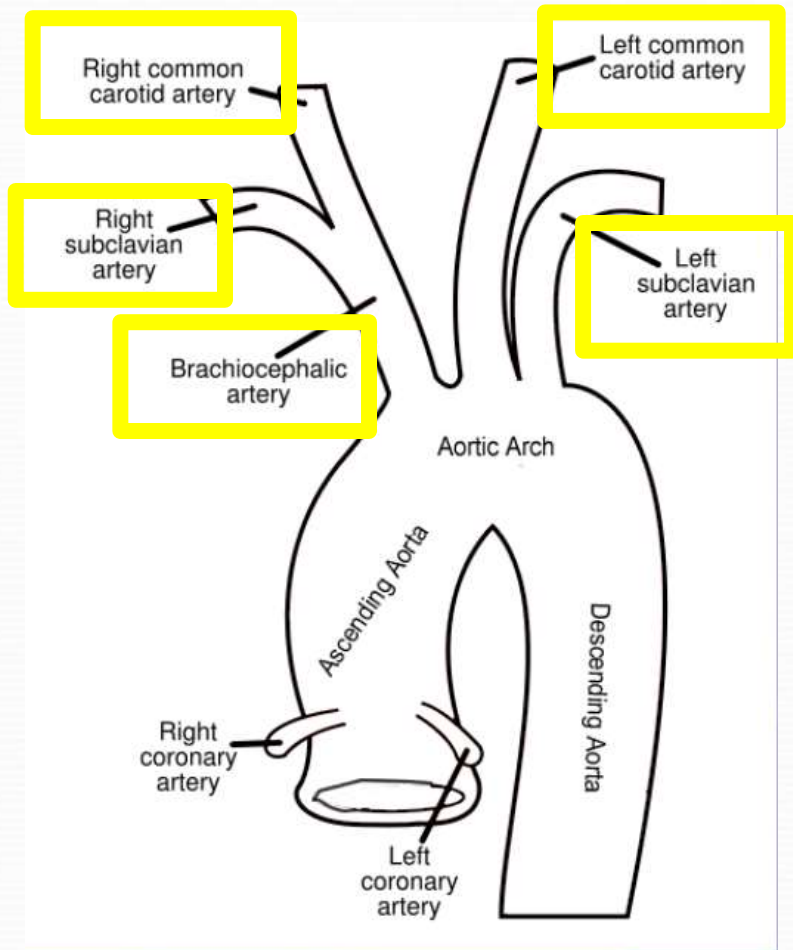
- All main arteries arise from the aorta
- The aorta arches to the left, to clear the pulmonary arteries – the aortic arch
- The “big three”
 - Brachiocephalic trunk (right Common carotid & r subclavian)
 - Left common carotid
 - Left Subclavian



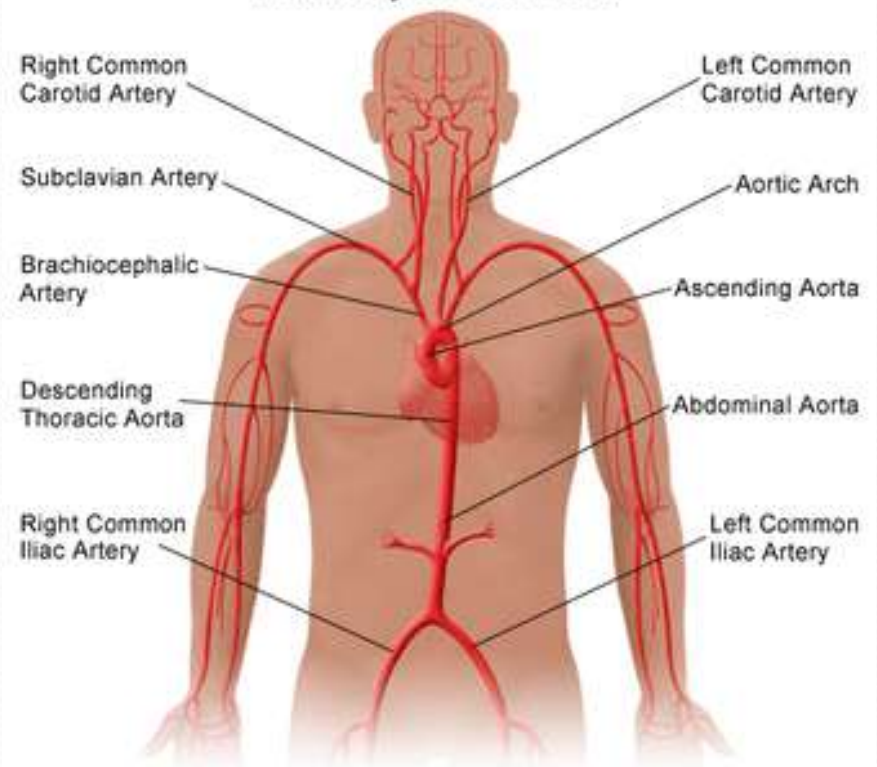
ABC'S of the aortic arch!

Aortic arch gives off the
Bracheiocephalic trunk, then the
left **C**ommon **C**arotid, and then the
left **S**ubclavian artery

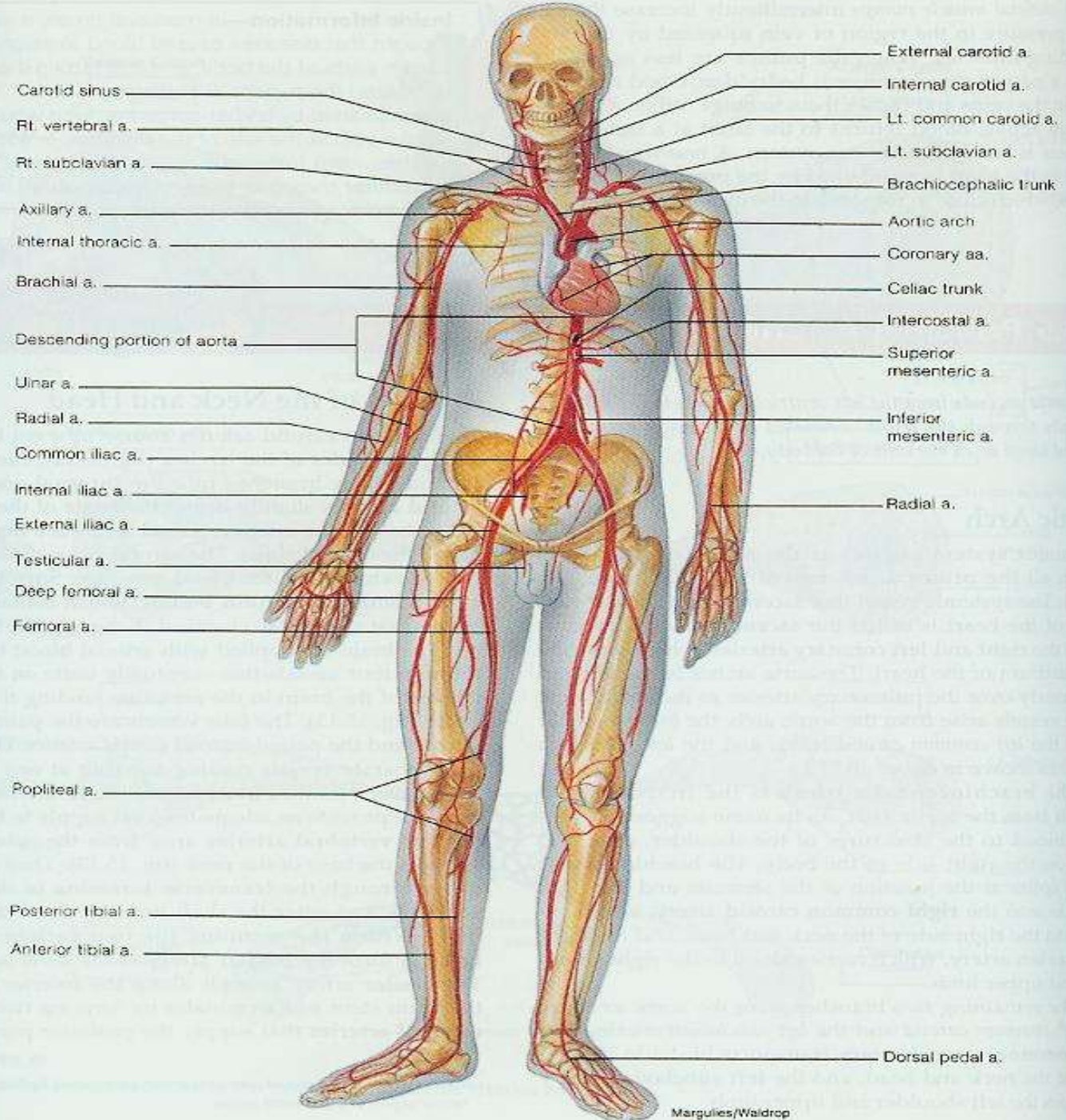
Ascending Aortic Branches



Anatomy of the Aorta



The Big Picture



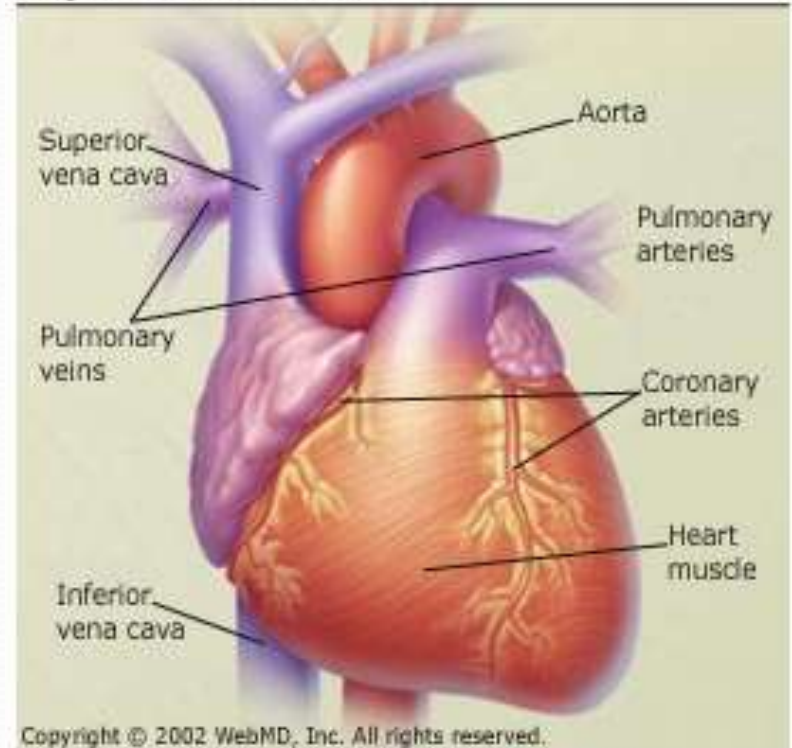
Main Veins

1. Superior Vena Cava
2. Inferior Vena Cava

The SVC drains the head and arms...

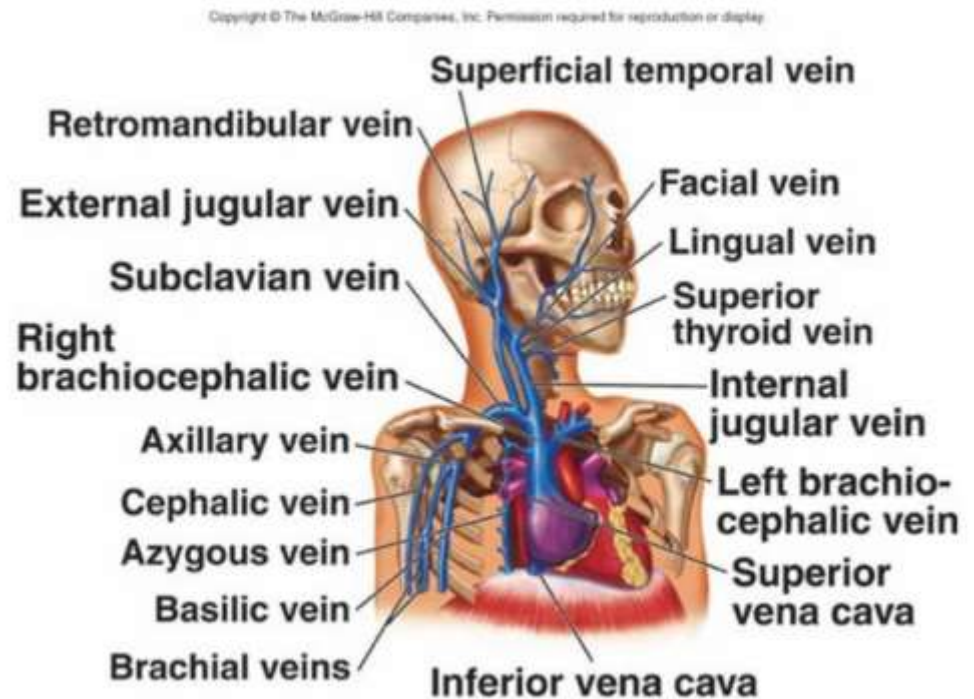
The IVC drains the lower body

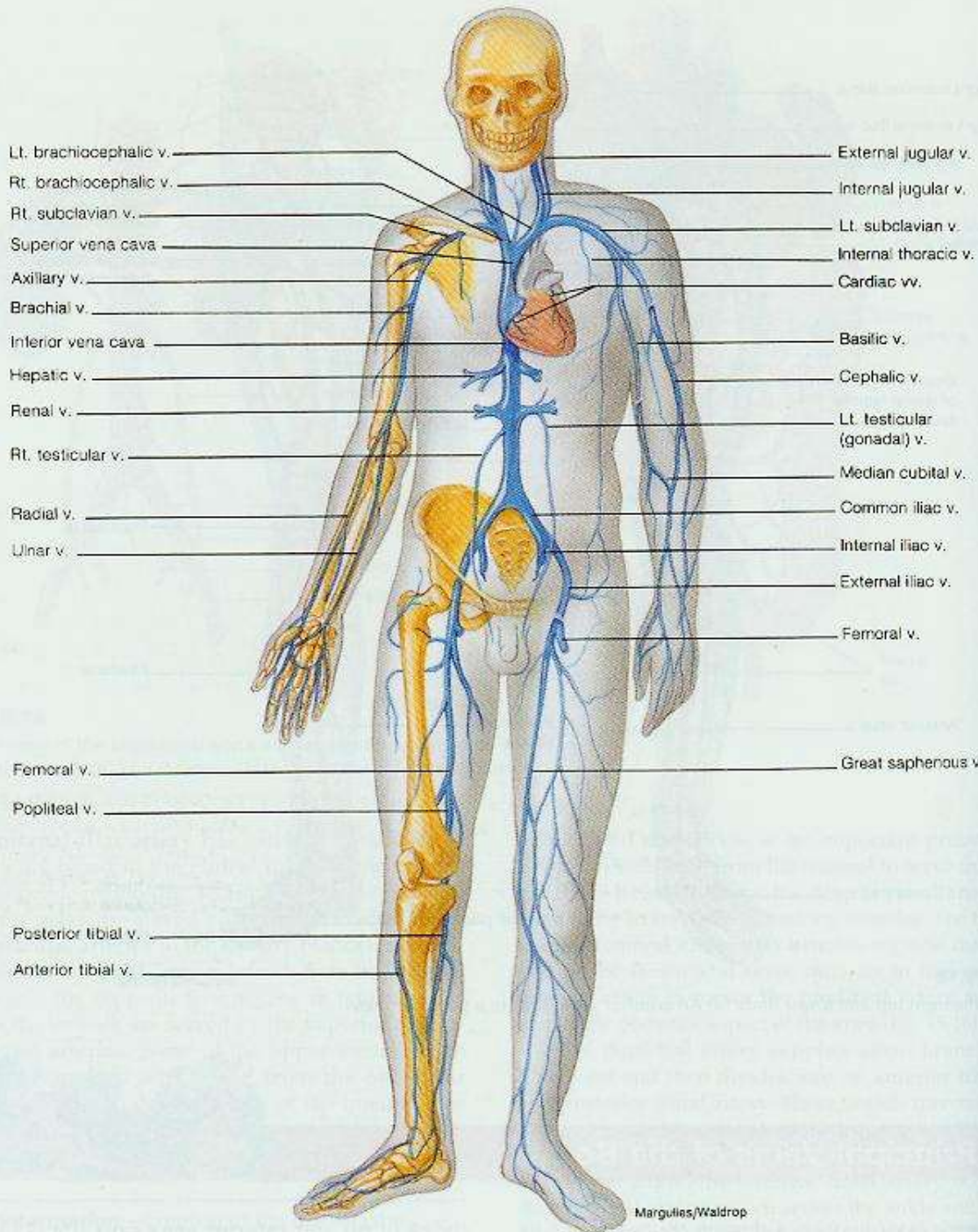
Major Blood Vessels



Vein Drain to SVC

- Right & Left Brachiocephalic Vein
 - Internal Jugular
 - axillary
- Subclavian
 - External Jugular
 - axillary





Why Blood Pressure?

- Accurate Blood Pressure Measurement is the first step in treating **hypertension** or high blood pressure.
- Primary factor in 68% of heart attacks and 75% of strokes.
- Hypertension is one of the major modifiable risk factors for many cardiovascular diseases



Definitions



- **Blood Pressure-** measurement of the force exerted by blood against the walls of the arteries
- **Systolic blood pressure-** the pressure in the large arteries when the heart is contracted
- **Diastolic Blood pressure-** the pressure in the large arteries when the heart is relaxed

Blood Pressure Steps

1. Be seated
2. Center of upper arm at heart level
3. Cuff applied 1" above elbow crease
4. Find radial pulse
5. Inflate cuff until pulse disappears
6. Place stethoscope on brachial artery
7. Slowly let air out
8. Listen for first blood flow sounds – **record systolic** number
9. Continue letting air out until blood flow sounds stop – **record diastolic** number

Normal Blood Pressure in Adults (18 or older) is:

Range:

-**110 to 140** systolic pressure

-**70 to 80** diastolic pressure

