

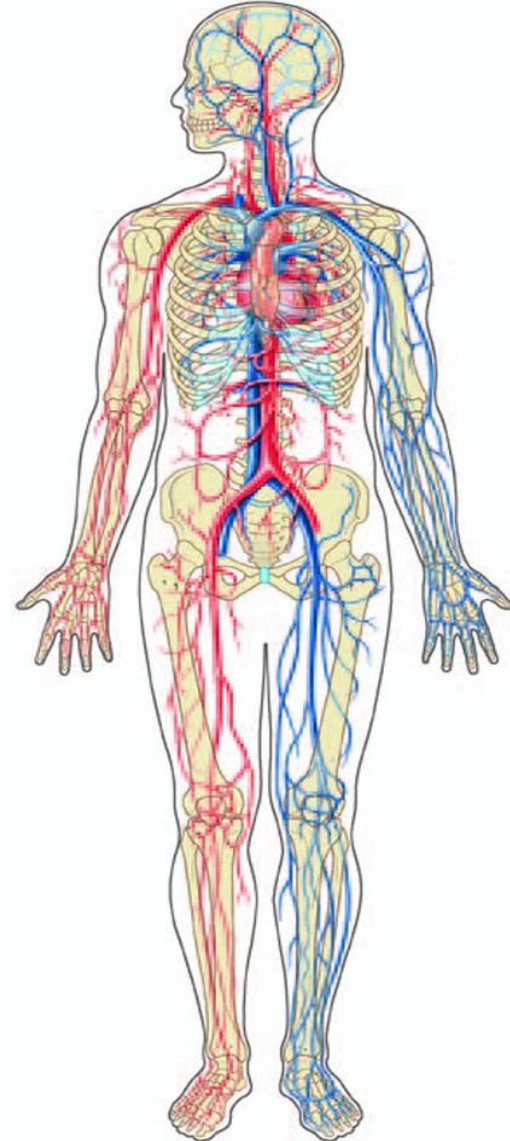
THE CIRCULATORY SYSTEM

Function(job): pumps blood through your body to transport oxygen and nutrients IN and send waste and carbon dioxide OUT.

The circulatory system gives your cells what they need to survive.

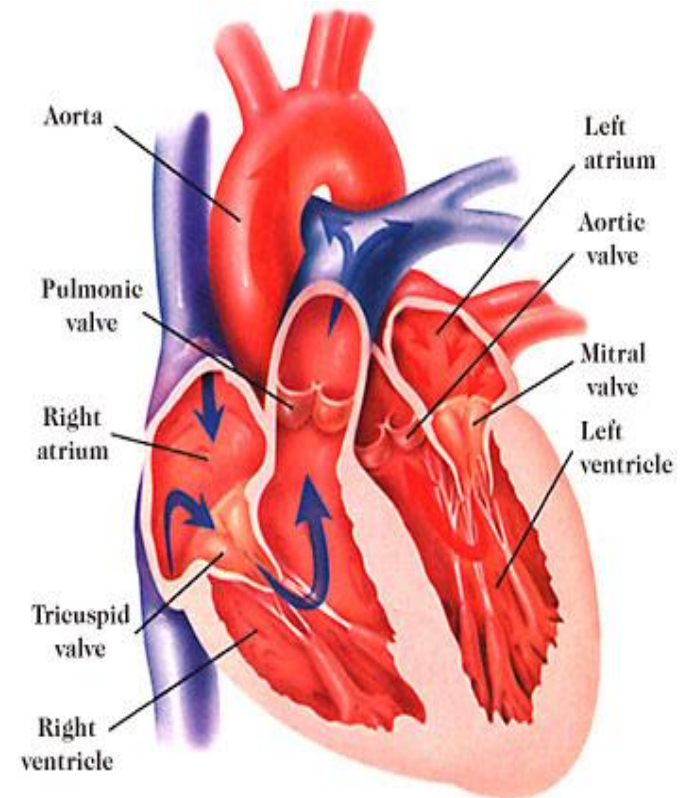
The circulatory system is made up of:

- 1. Heart**
- 2. Blood vessels**
- 3. Blood cells**



THE CIRCULATORY SYSTEM

- **Heart** – pumps and receives blood from body.
 - **LEFT SIDE:** from lungs out to body; oxygen in blood.
 - **RIGHT SIDE:** from body out to lungs; no oxygen in blood.



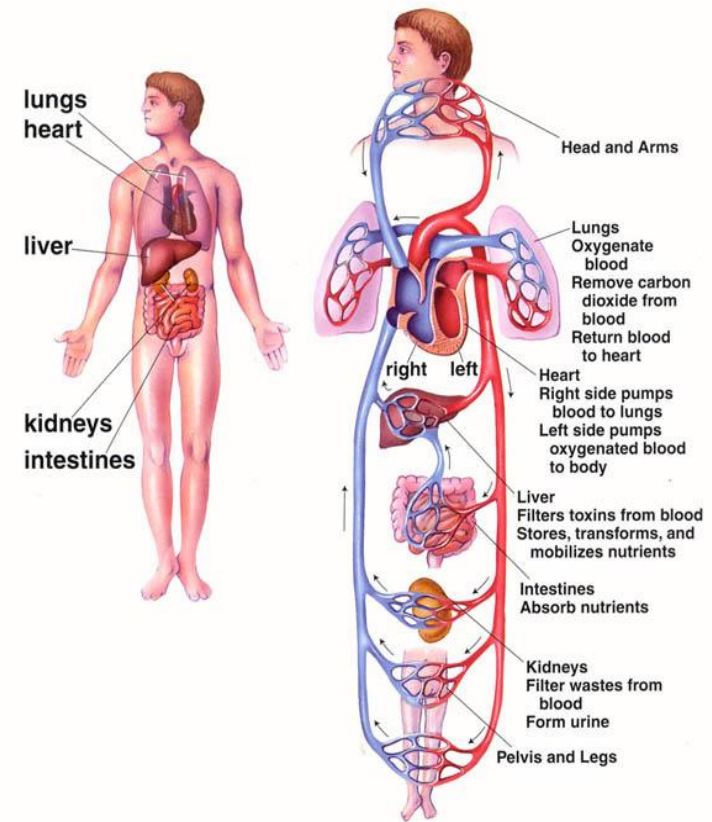
THE CIRCULATORY SYSTEM

Heart to Rest of the Body

- *Oxygenated* blood from the heart is sent through arteries to the rest of the body

Rest of the Body back to Heart

- The body receives oxygen from the blood.
- *Deoxygenated* blood travels through the veins and back to the heart

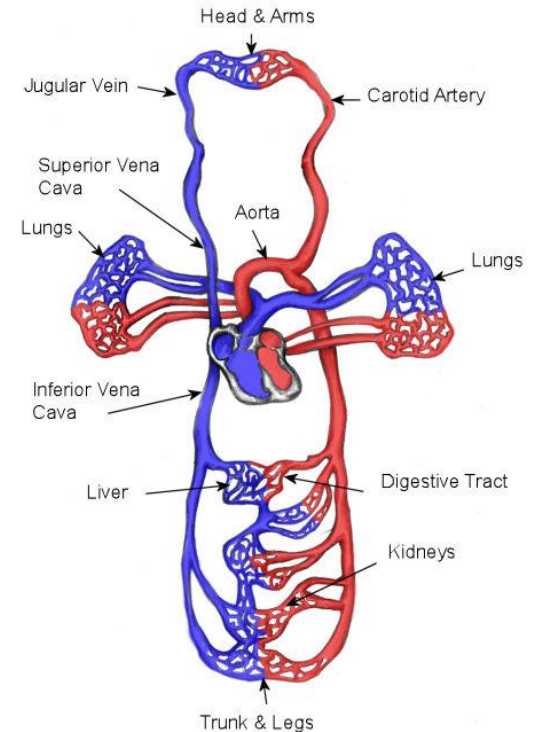


Blood Flow in the Cardiovascular System

BLOOD VESSELS

There are 3 types of blood vessels:

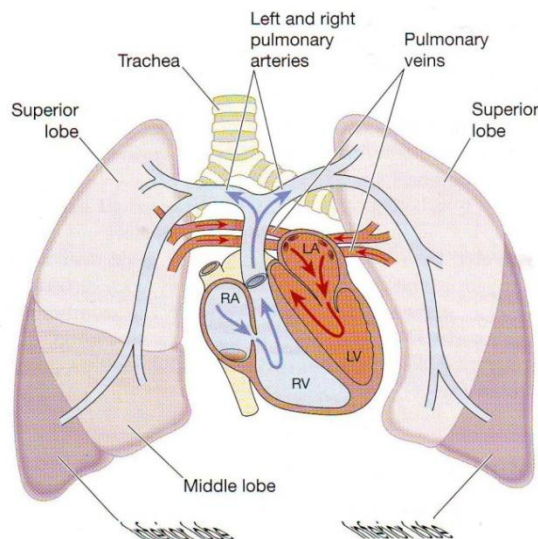
1. **Arteries**: carry blood away from the heart.
2. **Veins**: returns blood back to the heart.
3. **Capillaries**: small blood vessels that exchange gases, nutrients, and waste with body cells and the lungs



SENDING BLOOD AROUND THE BODY

Heart to Lungs:

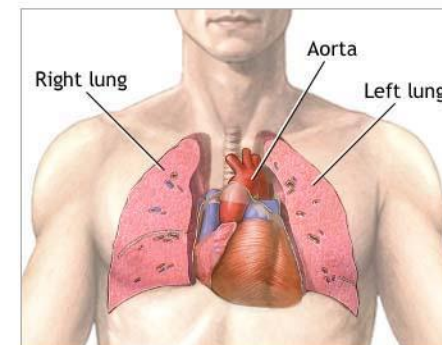
- The heart pumps deoxygenated (no oxygen) blood through the **arteries** and into the lungs

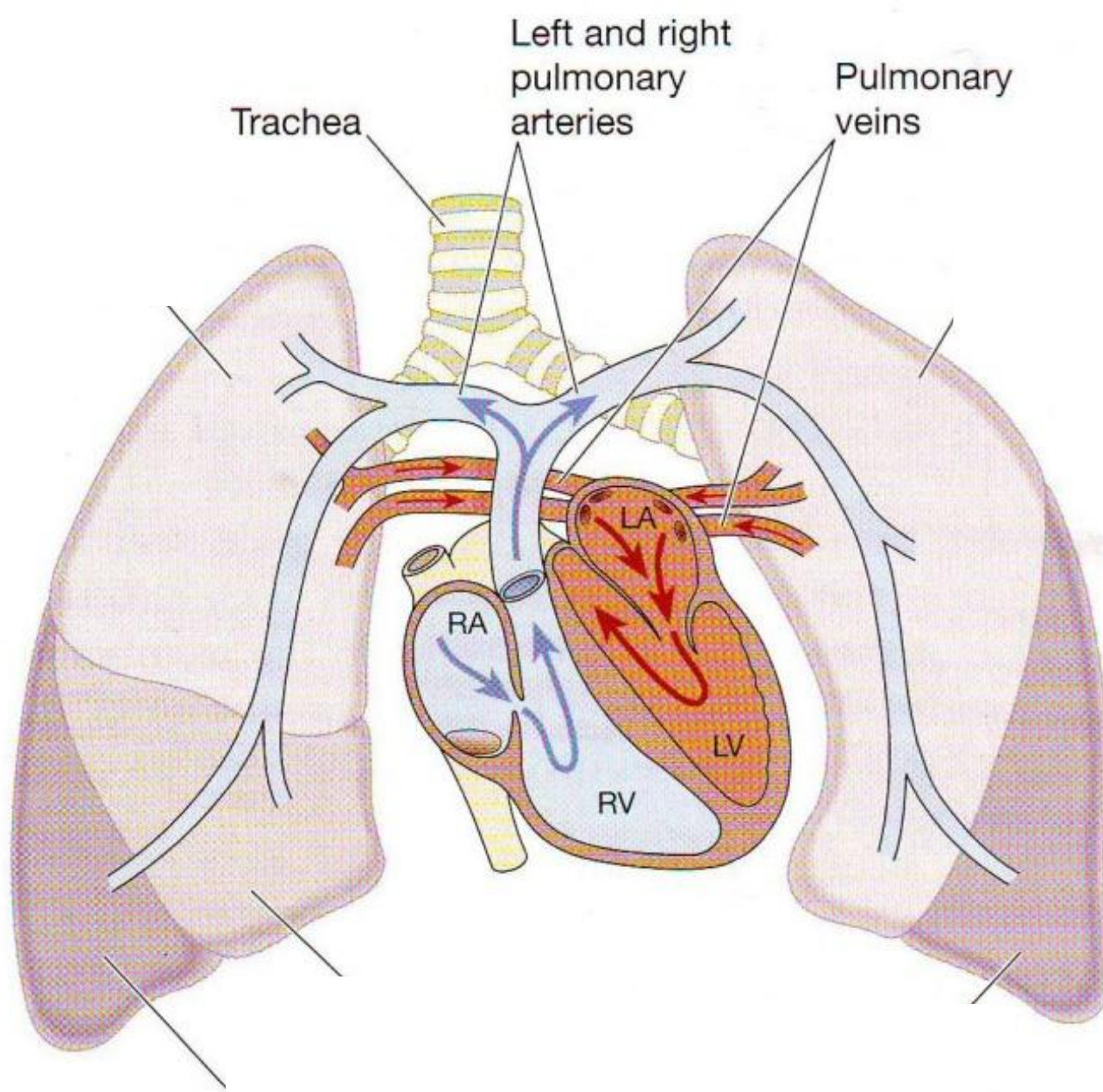


The flow of blood between heart and lungs.

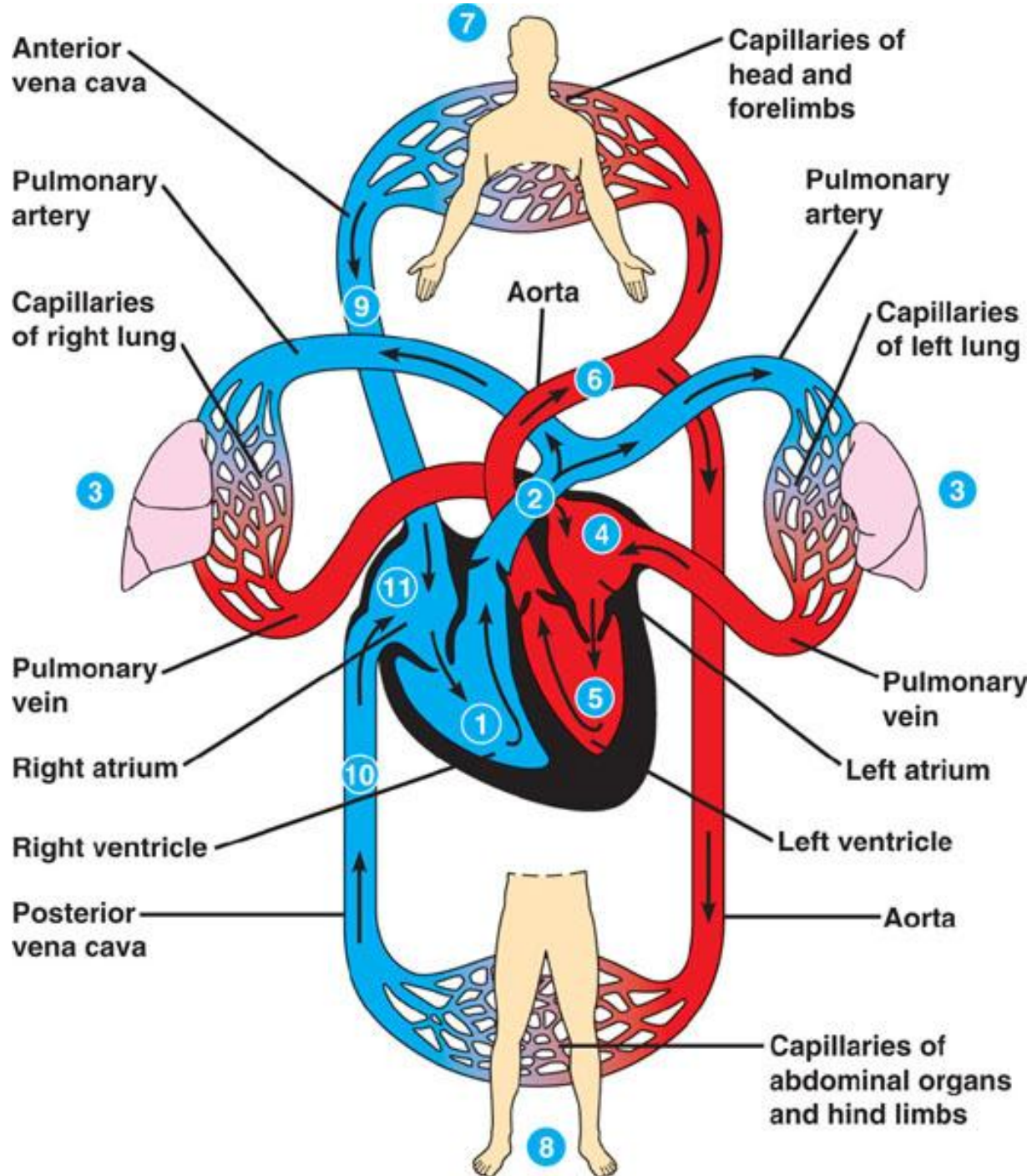
Lungs back to the Heart:

- The lungs fill the blood with oxygen and take away carbon dioxide
- *Oxygenated* blood travels through the veins and back to the heart



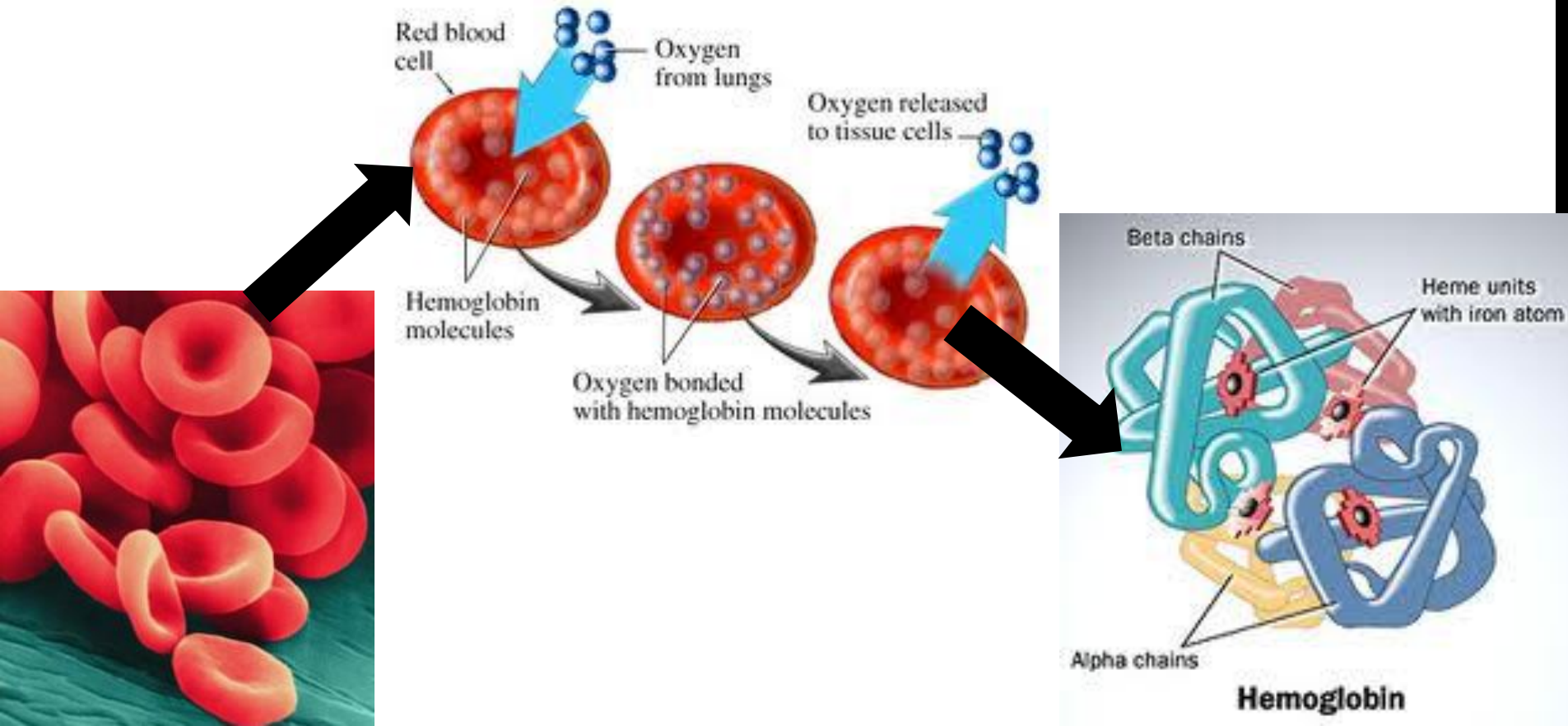


The flow of blood between heart and lungs.



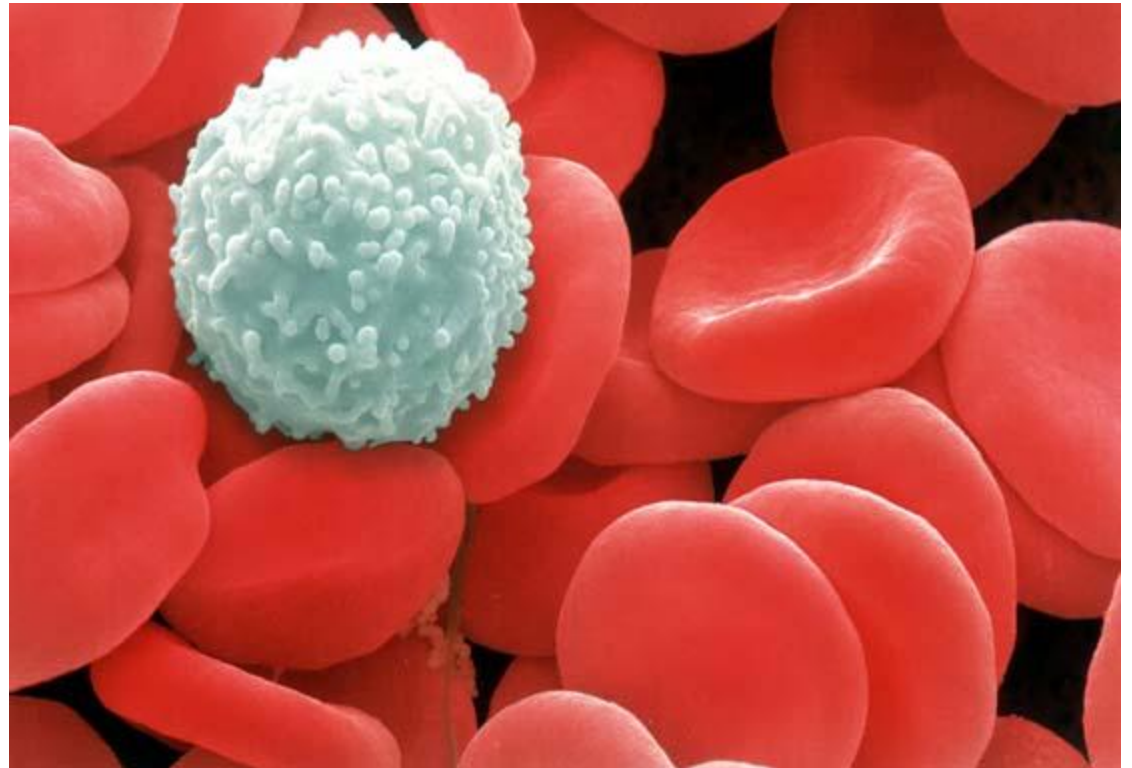
RED BLOOD CELLS

- Red blood cells contain the protein hemoglobin, which contains iron
- Hemoglobin carries the oxygen and *transports it to other cells in the body that need it*



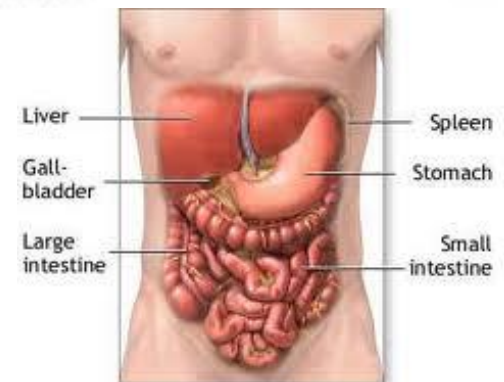
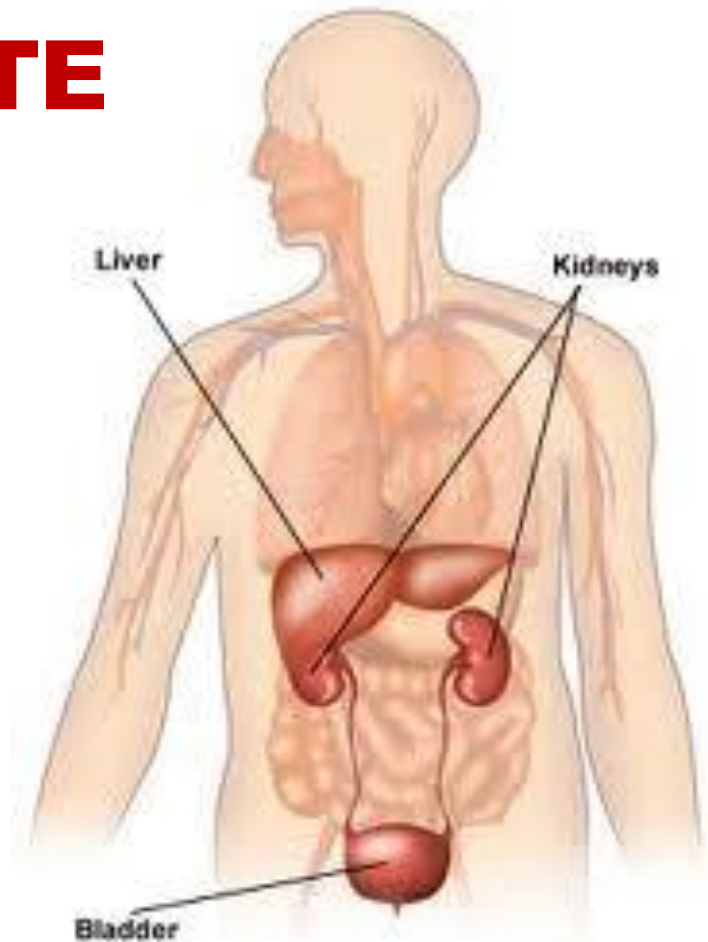
BLOOD CELLS

- 1. Red blood cells (carry oxygen)**
- 2. White blood cells (fight infection)**
- 3. Platelets (help blood clot)**



BLOOD CELLS & WASTE

- Blood cells also carry waste and water.
- When blood cells reach the kidney and liver, all the waste and extra water is removed
- The liver removes all of the toxic compounds from your blood



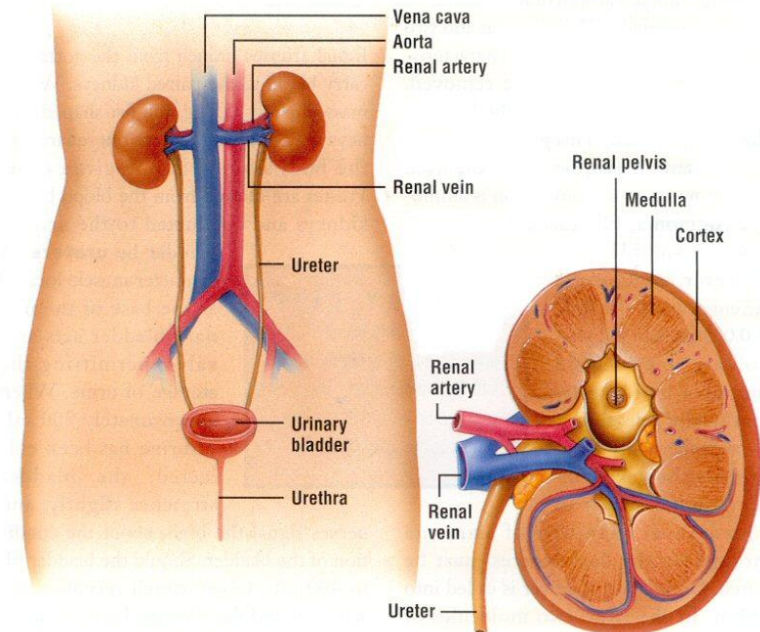
THE EXCRETORY (URINARY) SYSTEM

Function(job): keep a balance (homeostasis) in the body by excreting (removing) waste.

The excretory system gets rid of extra water and waste.

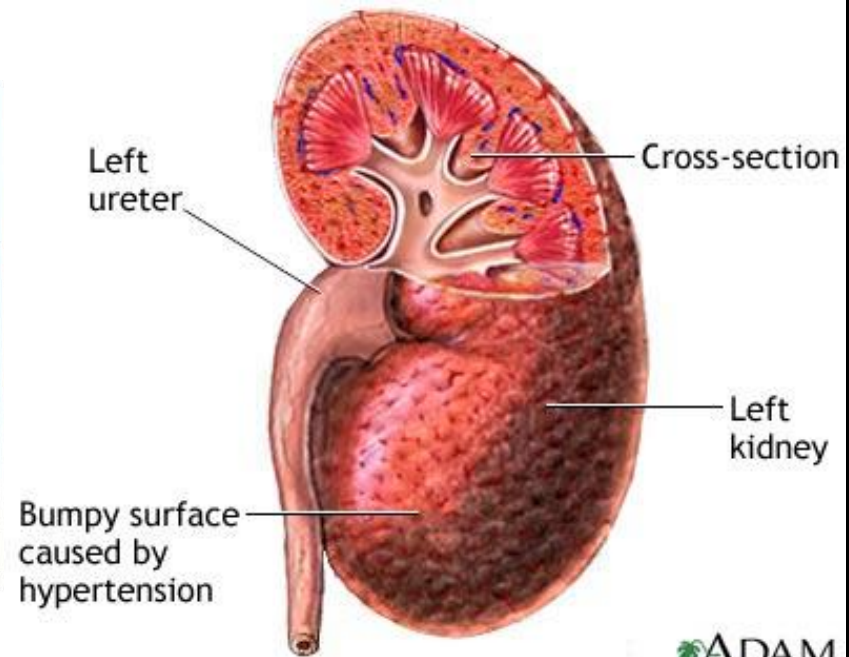
This system is made up of:

1. Kidneys
2. Ureters
3. Bladder
4. Urethra



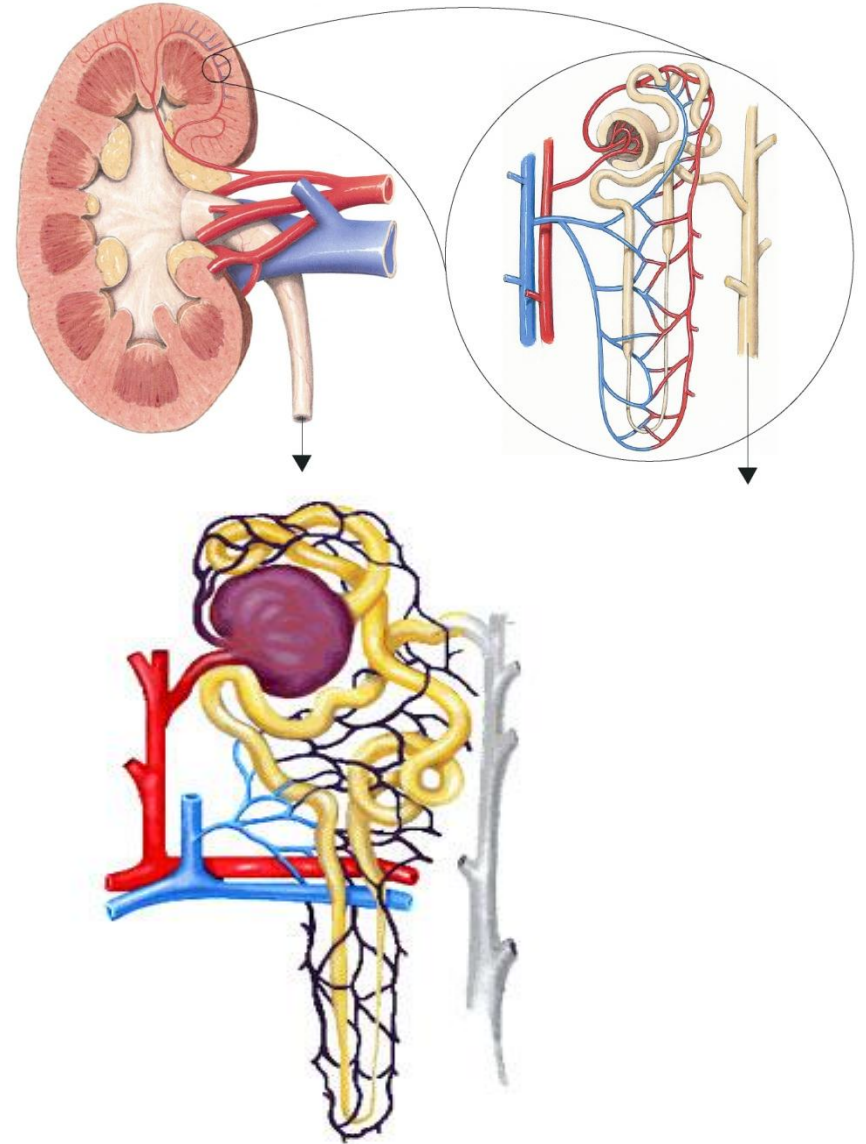
BALANCE OF WATER AND SALTS

- To survive, cells need to keep a balance of water and salt.
- The kidneys maintain homeostasis by removing the extra water in your blood.



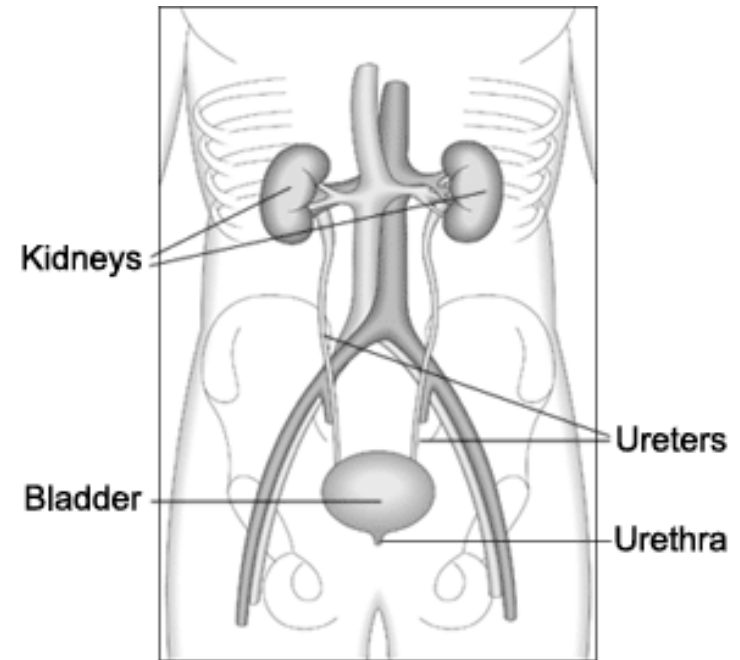
THE NEPHRON

- Structure in your kidney that filters blood.
- Substances that are harmful to the body, such as wastes, toxic chemicals, and salts are sent to the bladder for excretion.



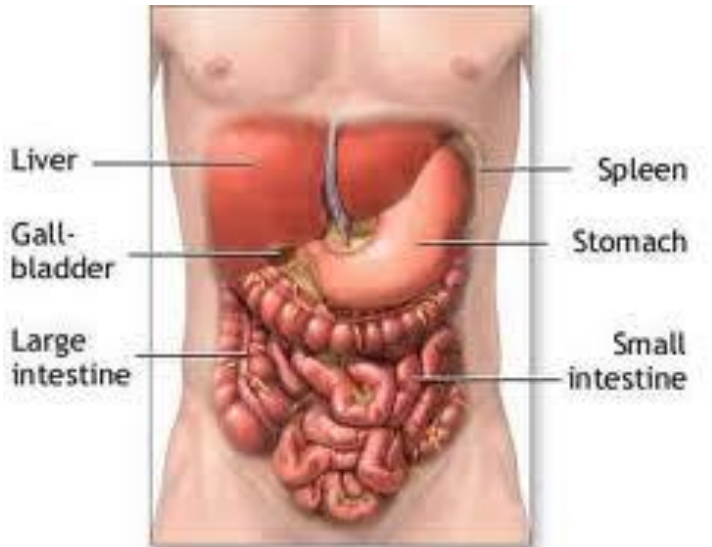
THE EXCRETORY SYSTEM

- The waste materials from the kidney travel through the ureters and arrive at the bladder, where it is stored.
- The urethra then takes the waste materials (urine) stored in the bladder and transports it out of the body

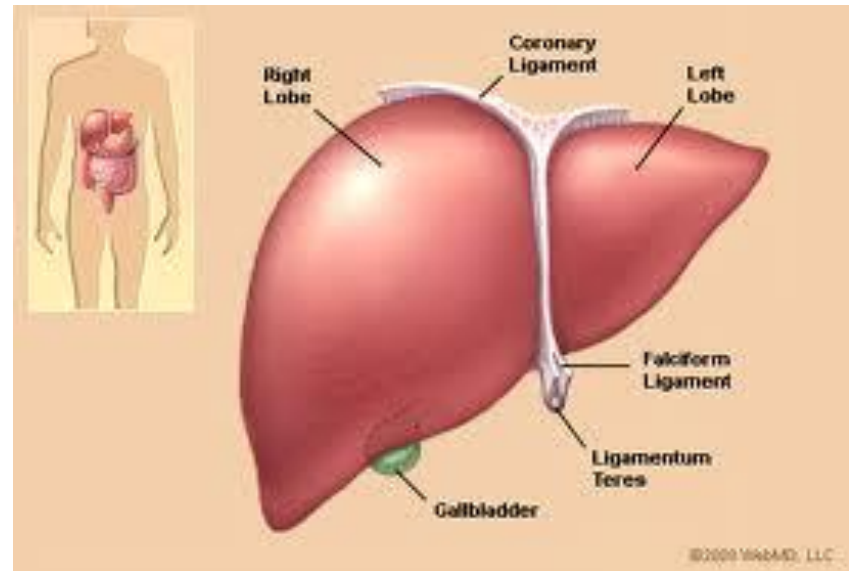


THE LIVER

- Blood also enters the liver.

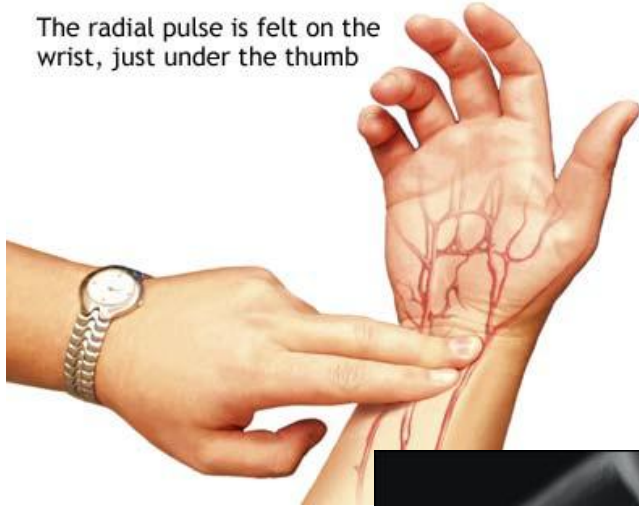


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LAB: EFFECTS OF EXERCISE ON PULSE & BREATHING RATES

The radial pulse is felt on the wrist, just under the thumb



Warm-up exercises for 5 to 10 minutes gently get the blood circulating

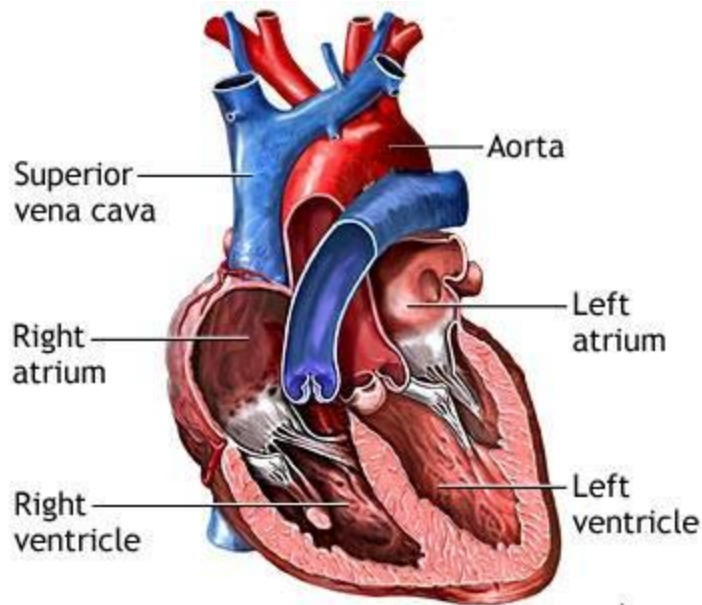


Cool-down exercises slow the heart rate and stretch warm muscles



THE HEART

The heart is composed almost entirely of muscle
By contracting and exerting pressure, it pumps
blood throughout the body.



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HEART RATE

Heart rate is the number of heartbeats per minute

Your heart can beat faster or more slowly, depending on your body's need for oxygen-rich blood.

