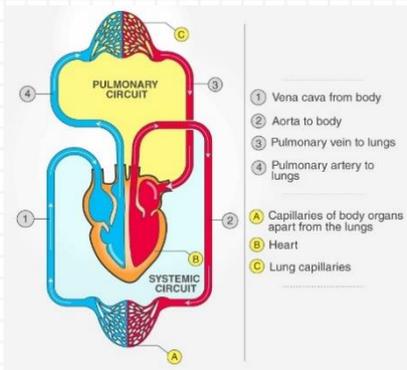


Transport in Mammals

A. CARDIOVASCULAR SYSTEM

Closed double circulatory system.



- **Pulmonary circulation.**
Deoxygenated blood goes to lungs through pulmonary arteries. Oxygenated blood travels back to Left atrium through pulmonary vein.
- **Systemic circulation.**
Oxygenated blood moving out of the left ventricle through the Aorta to the rest of the body. Deoxygenated blood travelling back through the Vena Cava into right atrium.

- At cold, vasodilation, flow blood to the places that need warmth.
- Prevent excess body heat loss. Heat circulates at the centre of the body.

Veins (into the heart)

- Low blood pressure
- Back flow prevented by semilunar valves.

Varices? Semilunar is broken.

Decease

Stroke: Artery in head broken

Blockage of blood vessels by:

- Fat = Athero Scelerosis
- Chalk = Arterio Scelerosis

Tingling sensation is because of:

- high cholesterol levels
- blood viscosity
- restrained blood.

The way to handle this is lay our hands down.

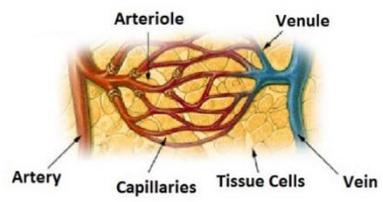
B. THE BLOOD VESSELS

Arteries (away from heart)

- Transport blood at high pressure
- Strong and elastic
- Recoil and strength to moderate the pressure.

Capillaries (linking arteries and vessels)

- No blood pressure
- Lumen only fit for one blood cell.



There's smaller lumen, when the red blood cell force itself to go through, the oxygen inside it will forcefully get out by oxygen diffusion.

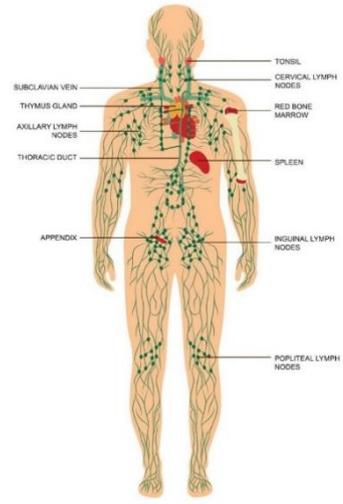
Arterioles

- Arteries branch to smaller vessels

"CONTROL BLOOD FLOW"

- Vasodilation= Widening of blood vessels with arterioles
- Vasoconstriction= Narrowing the blood vessels

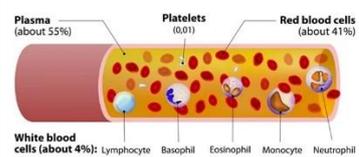
C. LYMPHATIC SYSTEM



- Green= blood plasm fluid and it leaves over metabolism
- Lymph Gland, the ripening site of the white blood / lymphocyte sets.
- Nodus lymph, place where lymphosit assemble.

Blood Plasm

The elements of blood



Pale yellow liquid is 55% of our blood.

Content:

- 90% water
- 10% Ions, Glucose, Urea, Plasma Protein

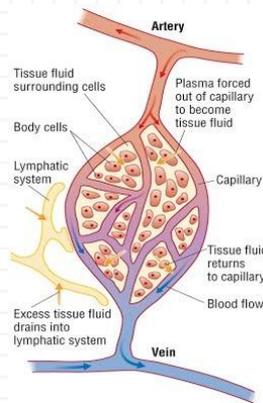
Function:

- Control pH within our body
- Contains hormone.

Fun fact!

acidic blood, the pH decreases so it evaporates as some oxygen enters, the pH decreases slightly.

Tissue Fluid



For your information, elephantiasis is caused by the worm "Wuchereria bancrofti". It grows in the lymph tissue, The longer it gets bigger.

Effects: Swelling Foot ~, Elephantiasis

D. HAEMOGLOBIN

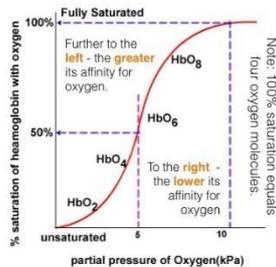
Contain: Protein, iron

Function: binds oxygen

Oxygen + haemoglobin= oxyhaemoglobin

Each haemoglobin contains iron prosthetic group. If it binds with oxygen, it will become red.

E. DISSOCIATION CURVE



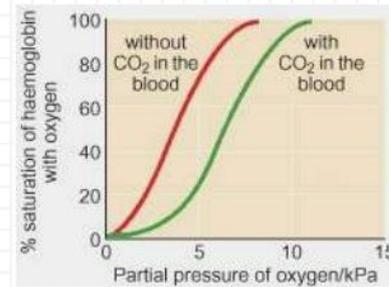
- At low partial pressure of oxygen – percentage saturation is very low – haemoglobin combines with very little, in this case one oxygen molecule.
- As partial pressure increases, it gets easier.

- Plus, haemoglobin changes shape after first combination to make it easier for the other three.

F. THE S-CURVE

The behaviour of harem molecule as it combines & releases oxygen. as an oxygen bind the first haemoglobin group, the other haemoglobin group will be slightly dissorted.It becomes successively easier for the 2nd-4th to bind oxygen. So the graphic will be steeply high.

C. THE BOHR SHIF



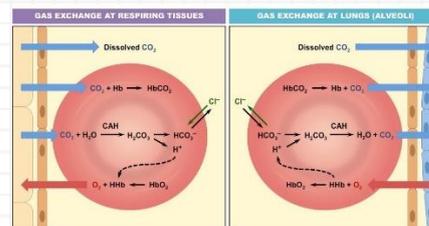
- high concentration of Hydrogen ions = low pH removing the hydrogen ions from Solution, haemoglobin main tin pH = Buffer

Bohr Effect

Presence of high partial pressure of carbon dioxide cause haemoglobin to release oxygen.

H. CARBON DIOXIDE TRANSPORT

There is three ways of how carbon dioxide reacts in red blood cell.



- Haemoglobin (Hb) transports oxygen and carbon dioxide:

- In respiring tissues:** The partial pressure of carbon dioxide is high, and the partial pressure of oxygen is low.
 - Carbon dioxide from the cells diffuses into the plasma.
 - Carbon dioxide combines with -NH2 terminal of haemoglobin to form carbahaemoglobin. (10% carried this way).
 - Most carbon dioxide combines with water (catalysed by carbonic anhydrase) to form

