Blood

Composition of blood

1. Plasma (55% of blood volume)

→ The liquid portion : yellowish

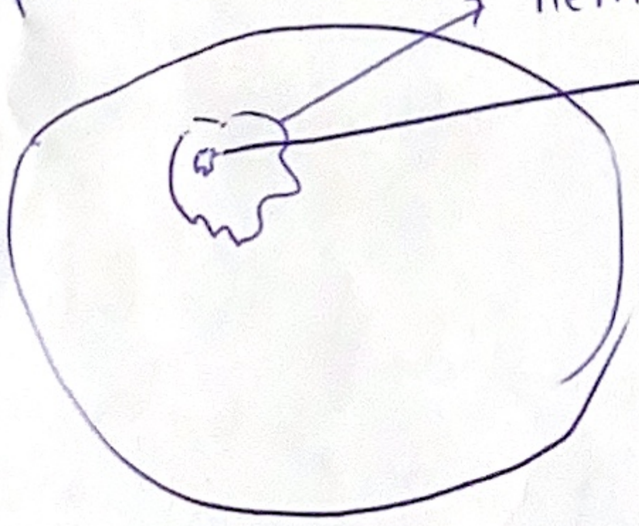
1.1. Water (90%)

1.2 Proteins
- Albumin → maintain osmotic pressure and transport substances
- Globulins → antibodis (immunity)
- Fibrinogen → essential for blood clotting

1.3 Dissolved substances
- nutrients (glucose, amino acid, vitamins)
- hormones
- electrolytes (Na, K, Ca)
- waste products (urea, carbon dioxide)

2. Red Blood Cells

→ Transport O_2



Lifespan => 120 days
No nucleus when mature...
Produced in bone marrow.

High altitude → Low O_2 → Stimulates more Red Blood Cell in bone marrow .... this is why athletes go for camping in high altitudes.

3. White Blood Cells

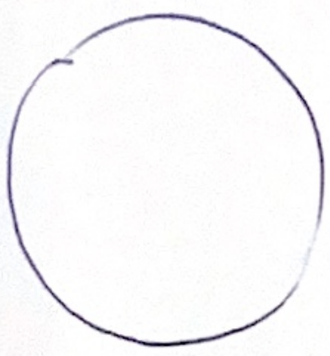
→ Immunity

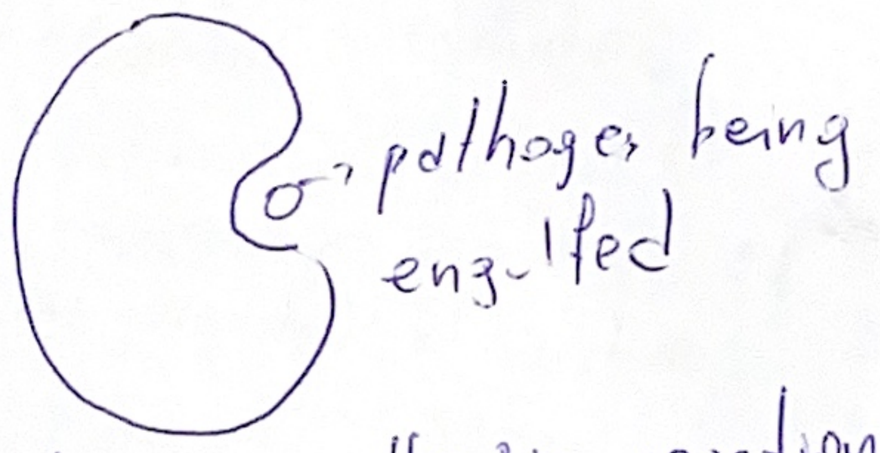
Types:

3.1 Neutrophiles → first responders to infections

3.2 Lymphocytes
- T-cell: Attack infected cells
- B-cell: Produce antibodies

3.3 Monocytes: engulf pathogens





3.4 Eosinophiles - fight parasites and involved in allergic reactions

3.5 Basophils: Release histamin during allergic reaction

Allergen (pollen or dust) → mast cells / basophils → histamine → inflammation

1. dilating blood vessels
2. increasing blood flow to the infected area
3. making blood vessels leaky. so eosinophil, can go to the allergen.

4. Platelets

Blood clotting

Tiny cell fragments

They stick to damaged blood vessels to form clots