Topic: Blood Composition and Function
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Blood: Composition and Function

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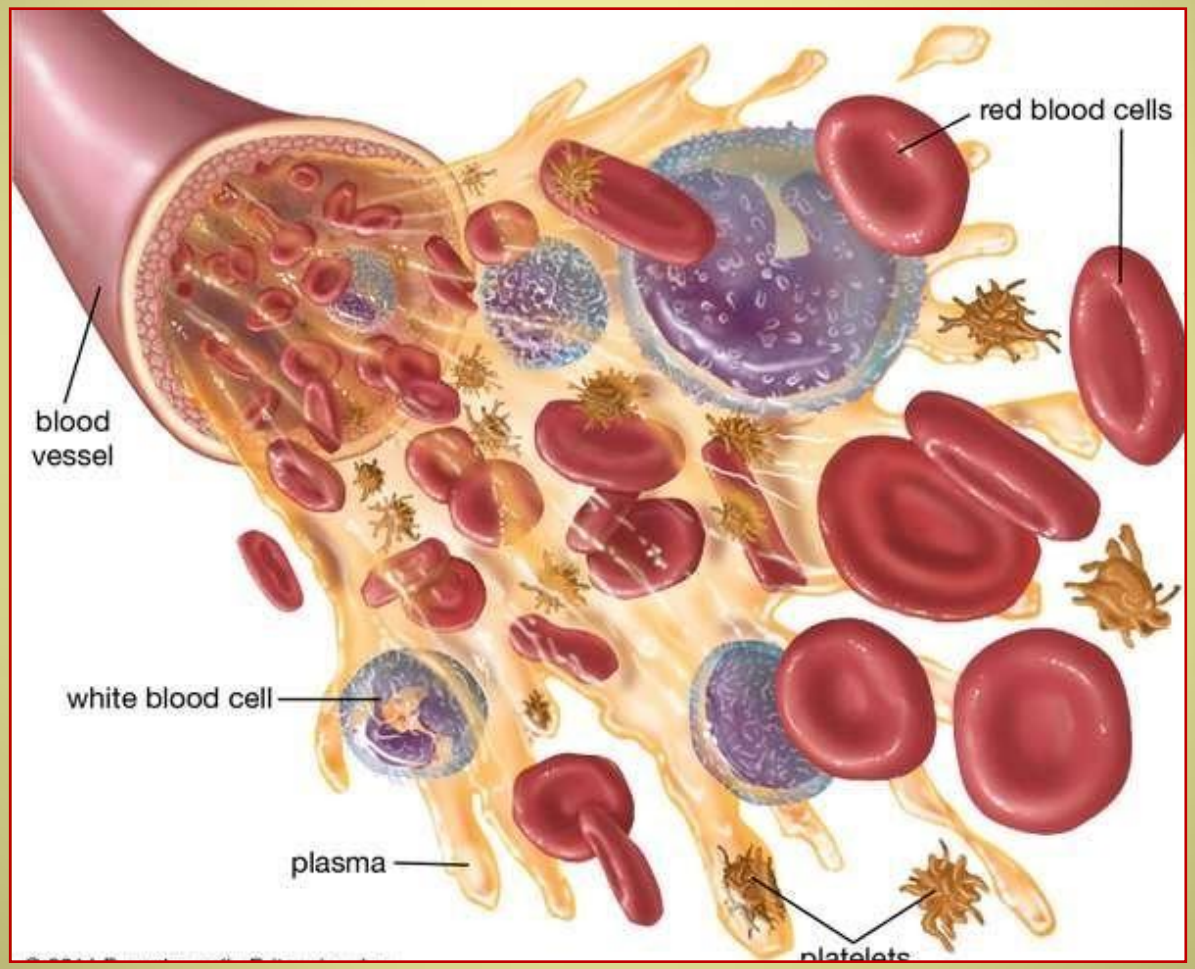
- Blood is a red colour pigment that circulates in the body. It contains plasma, red blood cells, white blood cells, and platelets It performs various functions in the body.

- **Blood** is a connective tissue that helps in the transportation of substances, protects against diseases and regulates the temperature of the body.

- It is red in colour due to a red pigment called **hemoglobin** present in its red cells.

- On average, a healthy man has about 5 liters of blood in the body, while a woman has about 500 ml less than man. So, total blood is about 60-80 ml/kg of body weight.

Fig: Composition of Blood



Composition of blood

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- Blood is classified as a connective tissue and consists of two main components:

- Plasma, which is a clear extracellular fluid

- Formed elements, which are made up of the blood cells and platelets

- The formed elements are so named because they are enclosed in a plasma membrane and have a definite structure and shape. All formed elements are cells except for the platelets, which are tiny fragments of bone marrow cells.

- Formed elements are:
- Erythrocytes, also known as red blood cells (RBCs)
- Leukocytes, also known as white blood cells (WBCs)
- Platelets
- Leukocytes are further classified into two subcategories called **granulocytes** which consist of neutrophils, eosinophils and basophils; and **agranulocytes** which consist of lymphocytes and monocytes.

- The formed elements can be separated from plasma by centrifuge, where a blood sample is spun for a few minutes in a tube to separate its components according to their densities.

- RBCs are denser than plasma, and so become packed into the bottom of the tube to make up 45% of total volume. This volume is known as the **haematocrit.**

- WBCs and platelets form a narrow cream-coloured coat known as the Buffy coat immediately above the RBCs. Finally, the plasma makes up the top of the tube, which is a pale yellow colour and contains just under 55% of the total volume.