RED BLOOD CELL (ERYTHROCYTES)

RBC (erythrocytes)

→ It transports haemoglobin thus O_2 & Co_2.
→ Contains large amt. of carbonic anhydrase, which helps water in the blood to transport enormous quantities of Co_2 in the form of HCO_3^-.
→ Hb in blood in an excellent acid-base buffer.

Properties :-

→ Biconcave
→ Mean diameter = 7.8 μm and
→ thickness of 2.5 μm at thickness point and 1 μm or less in center
→ Av. volume = 90-95 μm^3
→ Av. no of RBC = 4.5 to 5.5 million / mm^3, women = 4.3 to 5M / mm^3
→ Hb Content = 15g / 100ml (men)
140 g / 100 ml (women)
max = 34g / 100ml
→ Each gram of Hb = 1.34 ml of O_2
20ml of O_2 / 100ml (Men)
19 ml of O_2 / 100 ml (women)

* Heamatocrit = proportion of blood that in RBC.
Normal heamatocrit is 40 in men & 36 in women

In Severe anemia, it can be as low as 10, a value that is barely sufficient to sustain life.

In polythermia (inc RBC), it can be 0.65

→ life span = 120 days
→ Spleen = graveyard of RBC,

As RBC passes through spleen, it gets captured as spaces btw structural trabeculae of red pulp of spleen in adult

3μm wide as compared to 8μm wide RBC.

Destruction of Hb:-

Hb → Phagocytized by macrophages, kuffer cells in liver and macrophages of spleen & bone marrow.

↓

Iron is released in blood in few hr to days.

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Fe then carried by transferrin either to bone marrow for new RBC. or to liver and the tissue for storage as ferritin

* The porphyrin protein is converted into bilirubin by macrophages.

Erythrocyte Sedimentation Rate:-

→ The rate of sedimentation of RBC left untouched is the ESR.

→ ESR tends to be higher in women, with increasing age & pregnancy.