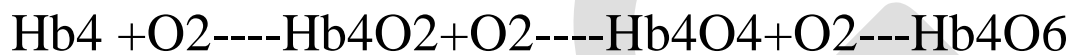


Transport of Oxygen to tissue:

Oxygen is carried in the blood to the tissue in two from:

i) **Oxyhaemoglobin (97%)**: it is a chemical combination of O₂ with haemoglobin



- 1.PP of O₂
- 2.PP of CO₂
- 3.TEMPERATURE
- 4.H⁺ ION
- 5.AFFINITY OF Hb₄ TO O₂

100 ML BLOOD 14.5 mg Hb₄; 1 GRAM OF Hb₄ COMBINES WITH 1.34 ML O₂. 100 ML BLOOD CARRIES (14.5 X 1.34)=19.43 ML O₂ .

ii) **Solution in plasma water (3%)**: O₂ dissolve in plasma of blood and carried to tissues.

when the level of O₂ is high in blood, it combines with haemoglobin to form oxyhaemoglobin.

Oxyhaemoglobin is unstable, and under certain conditions readily dissociates releasing oxygen. Factors that increase

dissociation include low O₂ levels, low pH and raised temperature.

Internal respiration:

Internal respiration is exchange of gases which takes place in tissue, so also known as cellular respiration.

In tissue, oxygen carried in the form of Oxyhaemoglobin get dissociated to liberating free O₂.

Hb₄O₈ ——— dissociates to give ——— Hb + O₂

PP O₂ 95 MMHG BLOOD.....PP O₂ TISSUE CELL...40 mmHg.

The free O₂ then oxidized the glucose in the presence of respiratory enzymes to liberate CO₂, water and energy.

$C_6H_{12}O_6 + 6O_2 \longrightarrow 6CO_2 + 6H_2O$
(METABOLIC WATER) + Energy

Energy is utilized by the tissue for its vital activities, while the CO₂ is diffused from the tissue.

PP CO₂ TISSUE CELLS ..45 mmHg...PP CO₂ IN BLOOD....40 mmHg.

Transport of Carbondioxide from tissue to lungs:

Carbon dioxide is one of the waste products of metabolism.

It is excreted by the lungs and is transported by three mechanisms:

i) as **Carbonic acid (H₂CO₃) (7%)**: some CO₂ dissolved in the plasma to form carbonic acid

carbondioxide mixed with water of blood plasma to form carbonic acid.

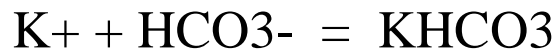
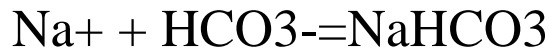


ii) **Bicarbonate ions (HCO₃⁻) in the plasma (70%)**:

carbonic acid formed in blood plasma quickly ionizes to form bicarbonates and hydrogen ions in the presence of enzyme **carbonic anhydrase (FASTEST ENZYME)**.



bicarbonate ions combined with sodium or potassium present in blood to form sodium bicarbonate (NaHCO₃) or Potasssium bicarbonate (KHCO₃) and transported in this form.



iii) as **Carbaminohaemoglobin (23%)**: some CO_2 combines with Haemoglobin to form carbaminohaemoglobin in RBCs.



finally, CO_2 are carried to lungs and expelled out by expiration process of breathing.

HYPOXIA: LACK OF O_2 IN CROWDED PLACE.....

ASPHYSIATION: STRANGULATION..... $\text{CO}_2\%$ INCREASES.