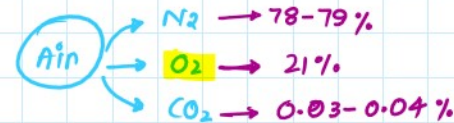


8.3 Transport of Respiratory Gases

Transport of Respiratory Gases

Transport of Oxygen in Blood



Air \rightarrow Lungs \rightarrow Blood (RBC) \rightarrow Aerobic tissues

- RBC \rightarrow Chemical union 97-98%
- Blood Plasma \rightarrow Dissolved 2-3%

EXTERNAL RESPIRATION

Pulmonary Artery
(P_{CO_2} 45 mm Hg)

Pulmonary Veins
(P_{O_2} 100 mm Hg)

Systemic Veins

Systemic Arteries

INTERNAL RESPIRATION

Tissue

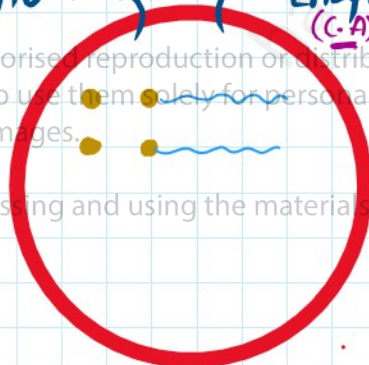
$P_{O_2} = 40$ mm Hg $\downarrow\downarrow$

$P_{CO_2} = 45$ mm Hg $\uparrow\uparrow$

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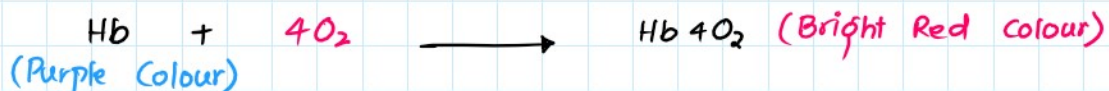
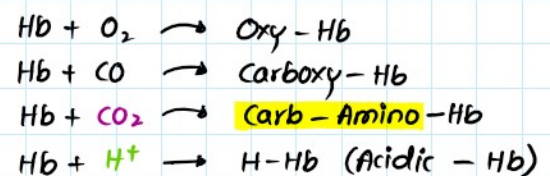
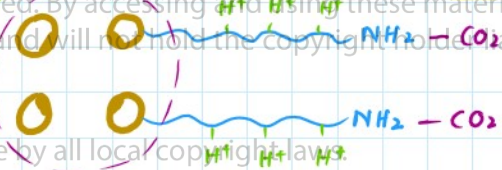


RED BLOOD CELL

$O_2, CO_2 + H_2O$

AFFINITY of Hb:

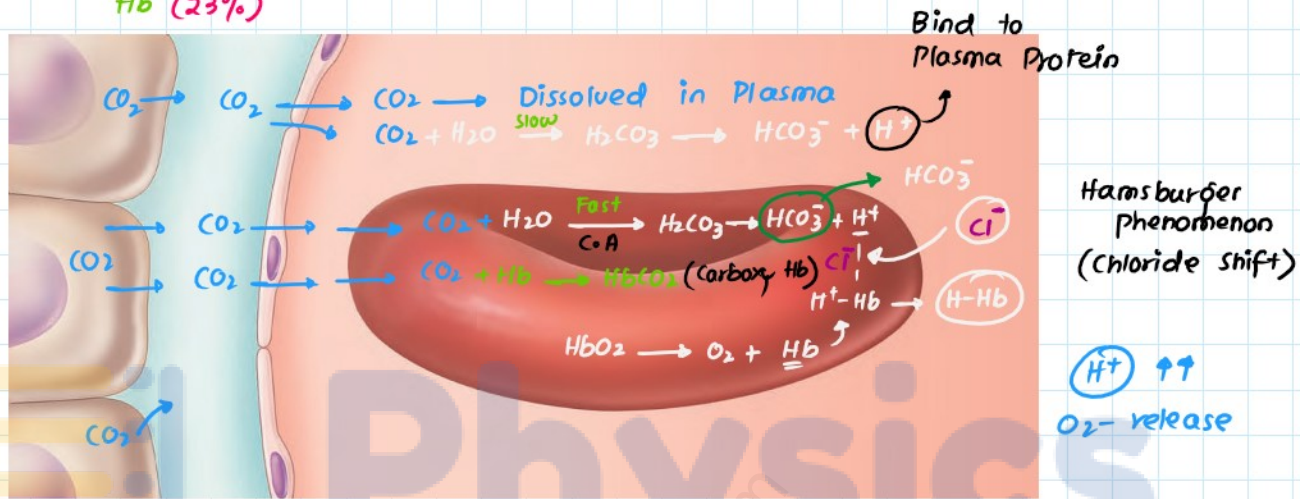
$CO > CO_2 > O_2$



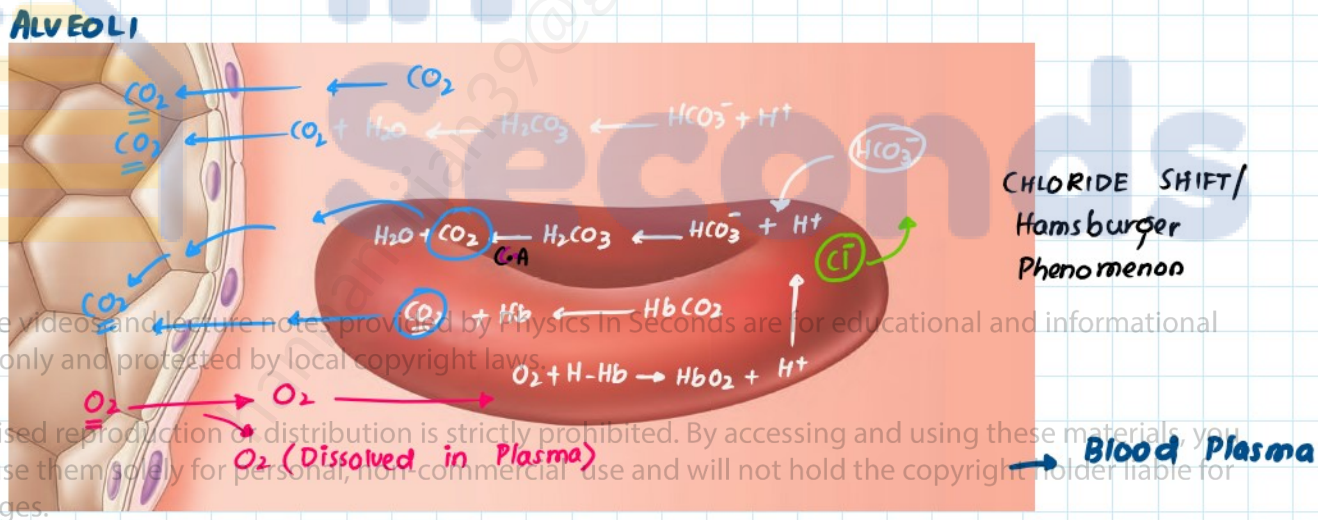
CO_2

- Bicarbonate — 70%
- Blood Plasma — 7%
- Carb- Amino Hb (23%)

Gaseous Exchange at Cell Levels



Gaseous Exchange at Lungs



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FACTORS	O_2 - CARRYING CAPACITY	O_2 - RELEASE
$\rightarrow \text{CO}_2 \uparrow \uparrow$	$\downarrow \downarrow$	$\uparrow \uparrow$
$\rightarrow \text{Temp.} \uparrow \uparrow$	$\downarrow \downarrow$	$\uparrow \uparrow$
$\rightarrow \text{pH} \uparrow \uparrow$	$\uparrow \uparrow$	$\downarrow \downarrow$
$\rightarrow \text{H}^+ \text{ concentration} \uparrow \uparrow$	$\downarrow \downarrow$	$\uparrow \uparrow$