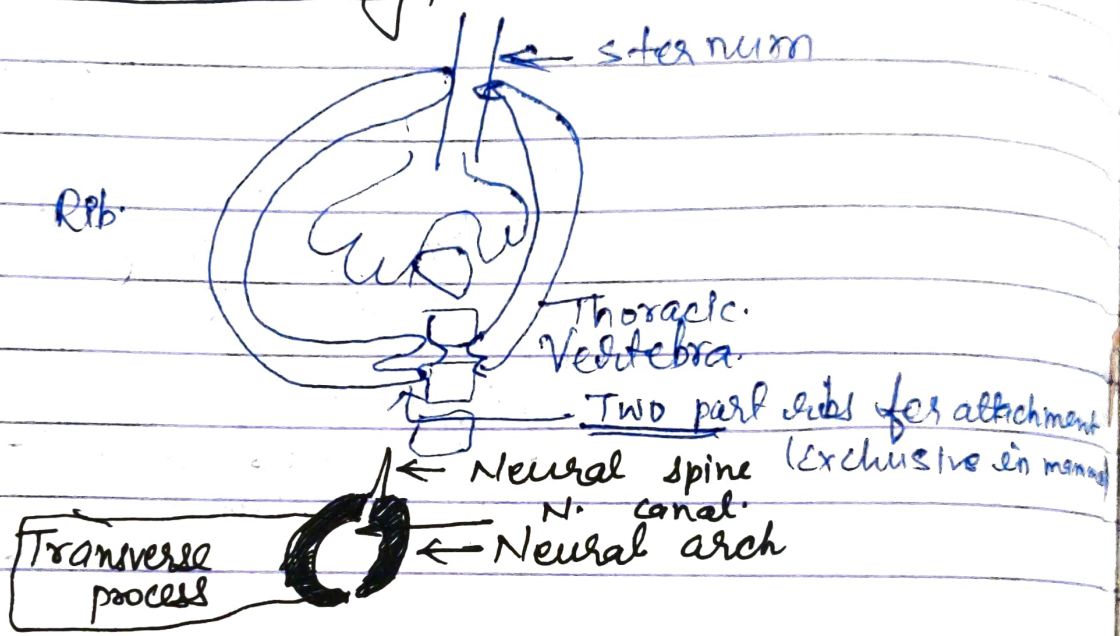
Mechanism of breathing;

Respiration — Exchange of gases.
breathing — Inspiration and expiration.

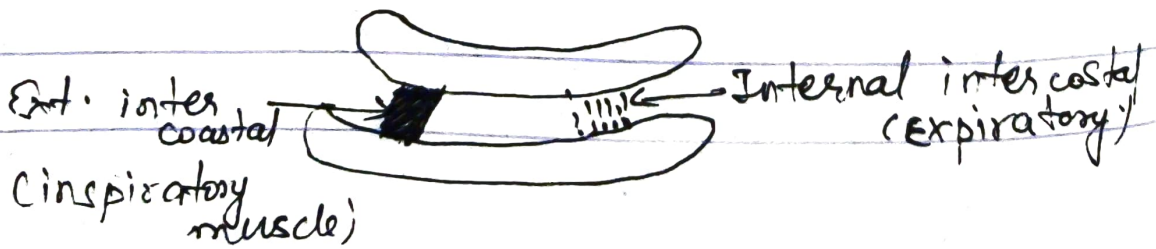
We breath in two ways.

(1) Costal breathing —



* Last ~~3-4~~ 2 ~~vertebrae~~ rib are floating rib in human
* " 3-4 " " " " rabbit

→ Muscle inside rib is inter coastal muscle.
2 set.
(1) External intercostal
(2) Internal "



* Rabbit → We breath with help of intercostal muscle according to our will.

37-38 pair of spinal nerve

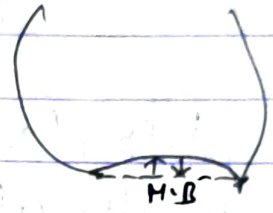
→ 12ve and 13 pair of spinal nerves are coming in ribs

of human 31 pair

→ Intercostal breathing is controlled by 11 or 12 thoracic nerve. One pair is supplied to brachial part for movement of hand. (brachial plexus — 8 pair of cervical nerve)

(2) Muscular diaphragm.

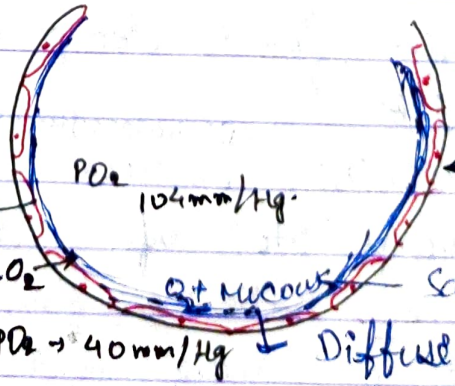
Cervical spinal nerve's branches (4th 5th & 6th pair of branches) → Phrenic nerve controlling the muscular diaphragm contraction & relaxation



Rythemically & automatically working by phrenic nerve.

→ sexual dimorphism is related to muscular diaphragm breathing. Female have less and male have more breathing. In advanced pregnancy stage even it is more or less stopped

Physiology of respiration



Haldane effect at lungs level. loading of O_2 ← Unloading of CO_2

* Mucous is needed for moisened surface area. Its dryness may cause ruptureness of alveolus

(1) Diffusion
(2) Transportation

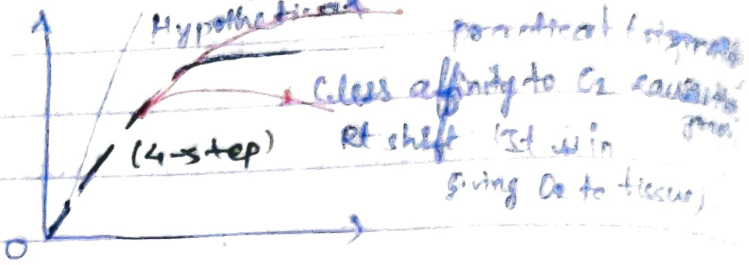
(1) Plasma (2) RBC

* RBC (Hb) has 40 times more affinity to O_2 than that of plasma) as O_2 is form of dissolution.

→ $Hbg_4 + 4O_2 \rightleftharpoons Hbg_4O_8$ (Oxyhaemoglobin)

→ Haemoglobin oxygen dissociation graph

affinity of Hb to get O_2



* Inorganic
→ Fog - 0.6%
* Faint in sumer is due to max. perspiration and loss of electrolyte.
* Urine is always acidic

$Hbg_4O_2 \rightleftharpoons Hbg_4O_2$

$Hbg_4O_2 + O_2 \rightleftharpoons Hbg_4O_4$

$Hbg_4O_4 + O_2 \rightleftharpoons Hbg_4O_6$

affinity to combine to O_2 is increasing $Hbg_4O_6 + O_2 \rightleftharpoons Hbg_4O_8$ (due to 4^{th} pr. in one Rbc ferrous → ferric Fe^{++})

(shifting of affinity increasing). It reason of sigmoid curve of Hb-O_2 dissociation graph.

→ Inorganic salts in human is present 0.9%

Cause of Rt. shift,-

(1) In acidic condition of blood. (↑ P. of CO_2 more, temp high)
(2) In fever temp is high which causes this shift.
(3) 2,3, DPG (Diphosphoglyceric acid) is also cause this shift. This is competitor of Hbs.

Causes of Lt shift,-

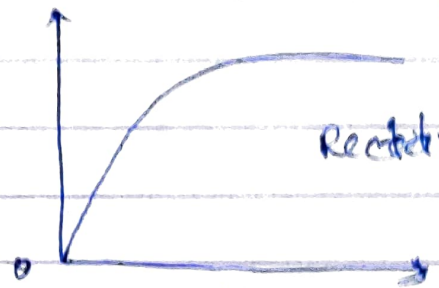
(1) CO is cause for shifting to left curve.
(2) CO has 300 times more affinity than O_2.
(3) Foetus's Hb is called Hbg_F.
in adult → Hbg_A

So, foetus Hb curve is shifted to left.

* Myoglobin resembles to Hb. Hb have only one Fe^{2+} molecule. → Red meat.
* In white meat – myoglobin (protein is absent) as – fish.
* In heart of human and thigh muscle have more myoglobin protein.

Tissue $PO_2 = 10 mm Hg$

(4) Myoglobin is also a cause of left shift.



Graph b/t myoglobin & O_2 dissociation graph

→ CO. supresses activity of 2,3 DPG and get attach more easily to Hb.

Bohr's effect – At tissue level

Unloading O_2 and loading of