

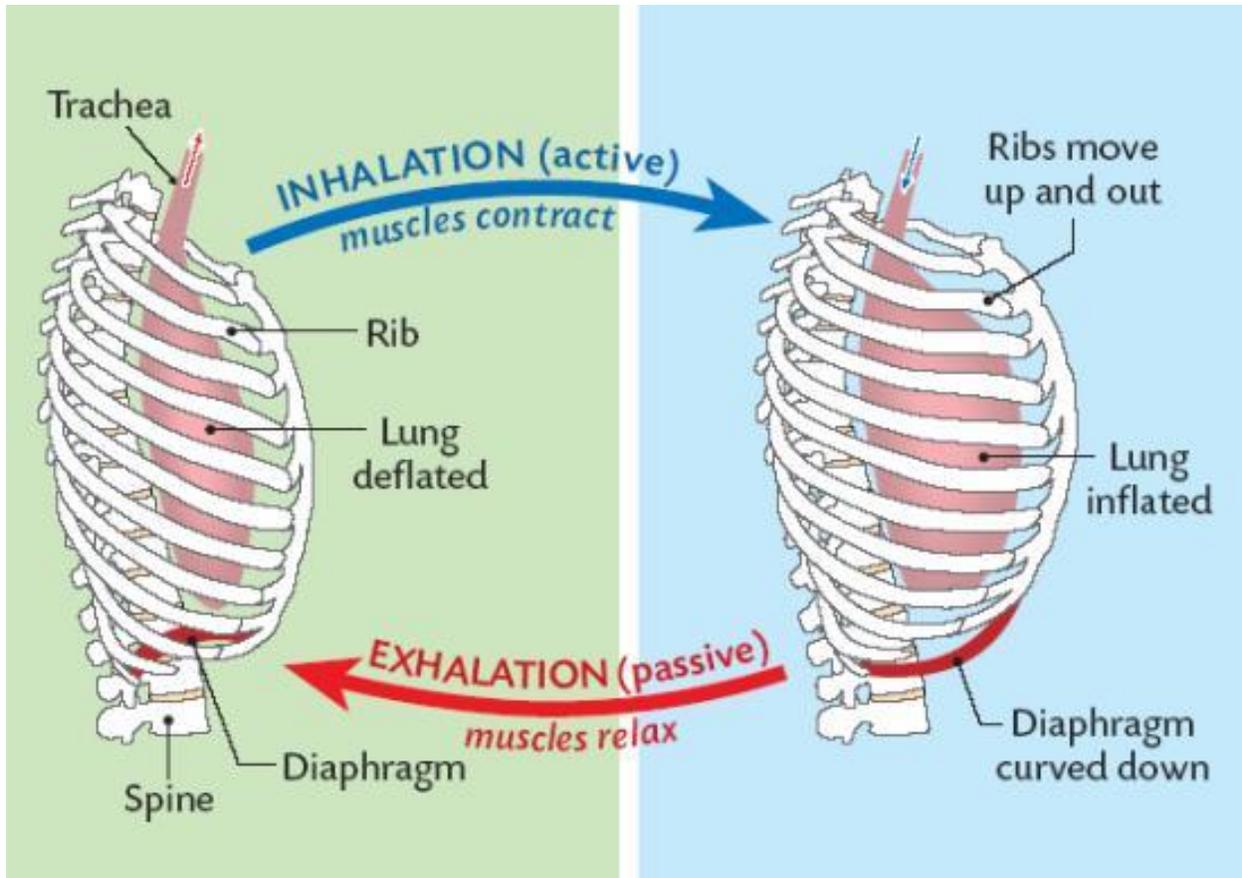
The 3 stages of respiration

- (I) The gas exchange between the atmosphere and (inspiration and expiration)
- (II) Gas exchange between alveoli and
- (III) Cellular

Inspiration

- 1) Diaphragm and the 11 pairs of intercostal muscles
- 2) When the diaphragm, it will move
- 3) Therefore the curvature of the diaphragm will
- 4) Therefore the volume of the thoracic cavity will vertically.
- 5) When the 11 pairs of intercostal muscles,
 - (i) the 12 pairs of ribs will move & and
 - (ii) the sternum will move
- 6) Therefore the volume of the thoracic cavity will horizontally.
- 7) With the walls of the thoracic cavity, the walls of lungs will also move with the diaphragm and & with the ribs.
- 8) Therefore the volume of the lungs will also
- 9) Therefore the pressure of the lungs will
- 10) When the pressure in the lungs than the atmospheric pressure, the atmospheric air will flow through the nasal cavity → pharynx → trachea → left and right bronchi → bronchioles → alveoli.
- 11) During, the atmospheric air flows into the alveoli in lungs.
- 12) Energy is necessary to the diaphragm and the 11 pair of intercostal muscle.

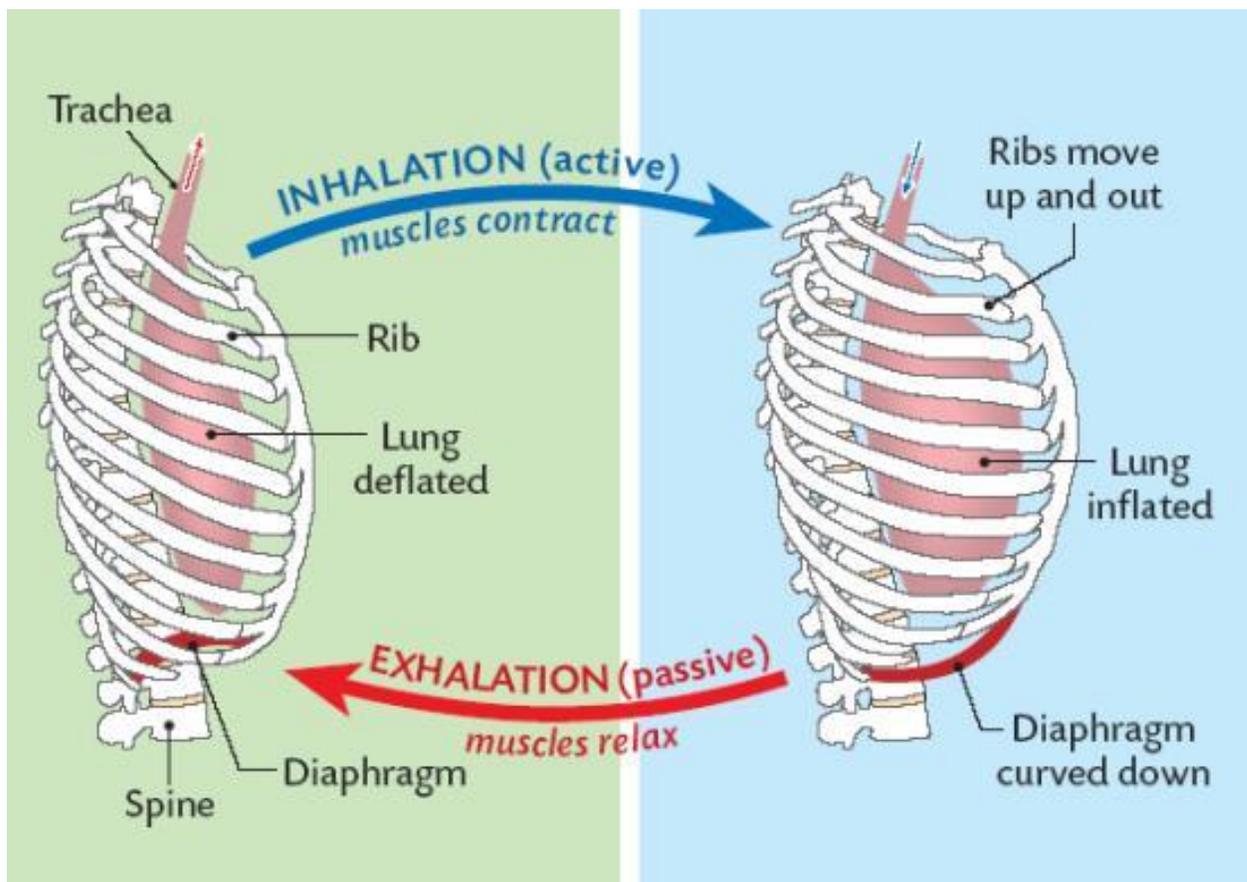
13) Therefore inspiration is an process.



Expiration

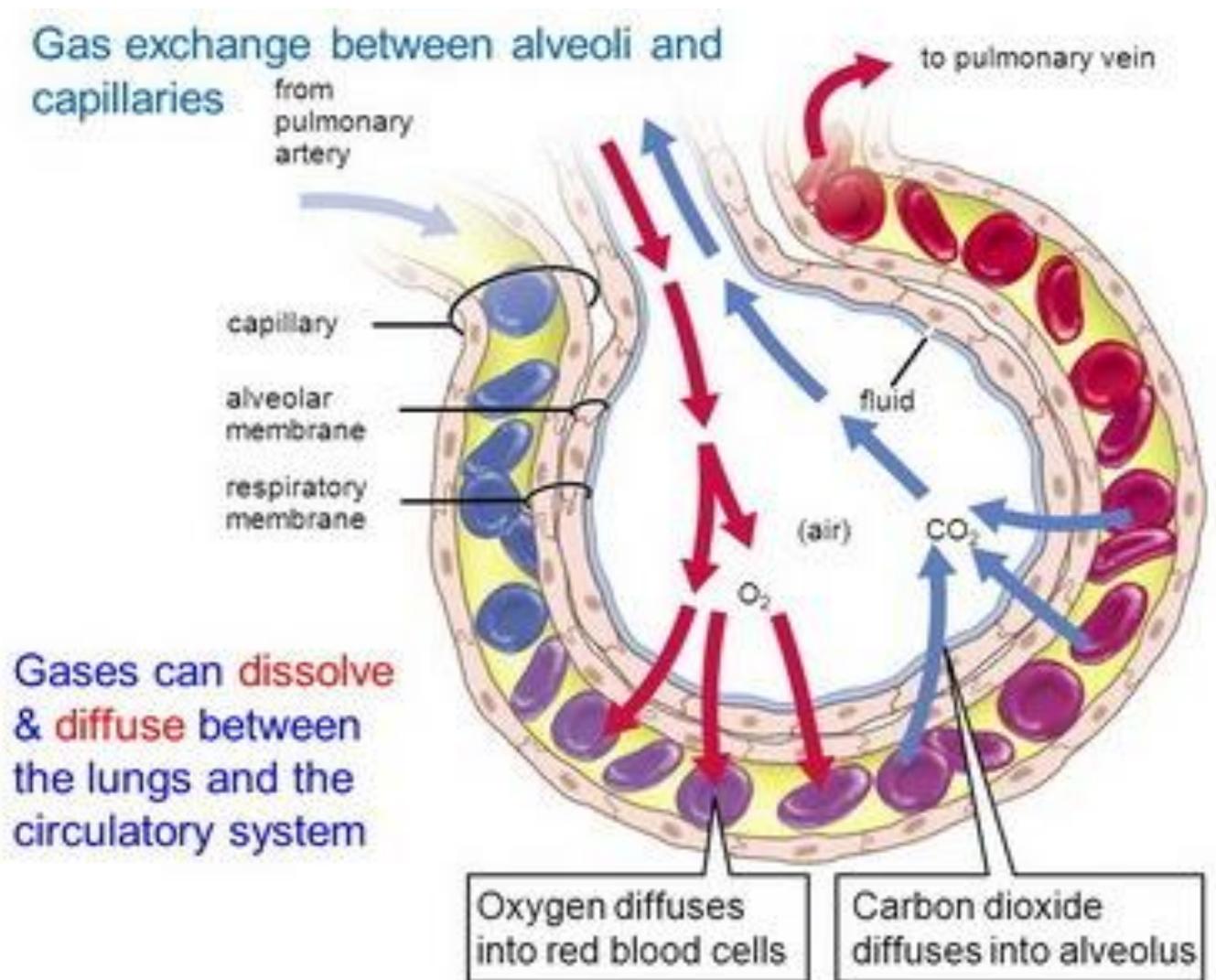
- 1) The diaphragm and the 11 pairs of intercostal muscles will
- 2) When the diaphragm, it moves upwards.
- 3) Therefore the curvature will
- 4) Therefore the volume of the thoracic cavity will vertically.
- 5) When the 11 pairs of intercostal muscles,
 - (i) the 12 pairs of ribs will move&
 - (ii) the sternum will move

- 6) Therefore the volume of the thoracic cavity will horizontally.
- 7) With the walls of the thoracic cavity, the walls of lungs will also move upwards with the and downwards and outwards with the
- 8) Therefore the volume of the lungs will
- 9) Therefore the pressure in the lungs will
- 10) When the pressure in the lungs than the atmospheric pressure, the air in the alveoli will flow through the bronchioles
→ left and right bronchi → trachea → pharynx → nasal cavity → atmosphere.
- 11)** During, the air in the alveoli in lungs will flow to the atmosphere.
- 12) Energy is not necessary to relax the and the 11 pairs of intercostal muscles.
- 13) Therefore is a passive process.



The gas exchange in alveoli

- 1) The O_2 concentration in alveoli is than the O_2 concentration in blood capillaries.
- 2) Therefore diffuses from alveoli into blood capillaries.
- 3) The CO_2 concentration and H_2O in blood capillaries is than the CO_2 concentration and H_2O vapour in alveoli.
- 4) Therefore and water vapour diffuse from blood capillaries to the alveoli.
- 5) Therefore the respiratory surface of human is the walls of



Adaptations found in alveoli for efficient gas exchange

- 1) There are large number of Therefore more surface area.
- 2) The wall of are made up of thin squamous epithelium.
- 3) There are large number of blood capillaries around
- 4) The surface of are moist. Therefore gases in alveoli can dissolve in this liquid before getting diffused into blood.

Cellular respiration

- 1) Cellular respiration occur in
- 2) There are two types of cellular

 - (i) Aerobic
 - (ii) Anaerobic

- 3) The cellularwhich occur in the presence of is called the aerobic cellular
- 4) In aerobic cellular respiration, glucose react with and produce carbon dioxide, water and energy.
- 5) Therefore aerobic cellular is an oxidation reaction.
- 6) Word equation of aerobic cellular-
Glucose + → Carbon dioxide + water vapour + Energy.
- 8) Balanced equation of aerobic cellular respiration -
$$\text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{} \rightarrow 6 \text{ CO}_2 + 6 \text{ H}_2\text{O} + \text{Energy}$$
- 9) The cellular which occur in the absence of is called the anaerobic cellular respiration.
- 10) Ethanol (a type of alcohol) is produced during anaerobic cellular in plants.
- 11) Therefore the anaerobic cellularin plants is called alcohol fermentation.
- 12) Word equation of alcohol fermentation -
Glucose → ethanol + carbon dioxide + Energy.
- 13) Balanced equation of alcohol fermentation –



14) Lactic acid is produced during anaerobic cellular in animals.

15) Therefore the anaerobic cellularin animals is called lactic acid fermentation.

16) Word equation of lactic acid fermentation -



17) Balanced equation of lactic acid fermentation -



18) Cramps occur during 100m race due to accumulation of acid as a result of anaerobic cellular respiration.

19) Complete breakdown of glucose occur during the aerobic cellular

20) Therefore more energy is produced during aerobic cellular

21) Incomplete breakdown of glucose occur during the anaerobic cellular

22) Therefore less energy is produced during anaerobic cellular

23) Part of the energy produced during aerobic and anaerobic cellular respiration is lost as heat.

24) The rest of energy will join with ADP and produce ATP.

25) Adenosine Di Phosphate (ADP) + \rightarrow Adenosine Tri Phosphate (ATP)

26) When energy is necessary, ATP will break down and produce ADP and energy.

27) Adenosine Tri Phosphate (ATP) \rightarrow Adenosine Di Phosphate (ADP) + Energy

Function of ATP

- (i) Storage of
- (ii) Release of
- (iii) Carrier of

The energy stored in ATP is used for

- (i) Movement of muscles
- (ii) Active movement
- (iii) Chemical reactions
- (iv) Production of new cells
- (v) Synthesis of complex compounds from simple compounds
eg. Amino acids → proteins

Pneumonia

- 1) Inflammation of lungs is called
- 2) Fluid may accumulate in
- 3) Pneumonia is caused by a bacterium or a
- 4) Prolong cold and cough are the main sign of

Common cold

- 1) Common cold is a infection
- 2) The common signs are headache, sneezing, running nose and
- 3) No medical treatment for infections.

4) Avoid dust and moist.

Asma

1) is a condition where the cross sectional area of bronchioles are reduce due to inflammation.

2) Therefore finds it difficult to

3) Dust, smoke, pollens, fur causes

Bronchitis

1) Bronchioles swell due to viral or infection.

2) Signs are sever cough & difficulty of

3) The voice gets affected if gets infected.

Tuberculosis

1) Tuberculosis is due to a

2) get infected.

3) Signs –

(i) Blood releases with phlegm when

(ii) Fever

(iii) Tiredness

(iv) Loss of apetite

(v) Fever

Diseases associated with smoking

- 1) Haemoglobin loves to bind with (CO) than with O₂.
- 2) Therefore haemoglobin binds with (CO) irreversibly.
- 3) Therefore O₂ cannot bind with
- 4) Therefore the carrying capacity of blood reduces.
- 5) Nicotine found in cigarette increases therate.
- 6) Destroys the in the respiratory track.
- 7) Bronchioles swell and causes difficulty in
- 8) The epithelial cells in the alveoli will become abnormal and become cells.

Silicosis

- 1) (Si) gets deposited in the alveoli and causes silicosis.
- 2) People who are working in glass factories, coal mines and quarries will inhale

Asbestosis

- 1) Inhaling asbestos particles and its fibres will destroy the respiratory track and causes