ARTIFICIAL RESPIRATION

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ARTIFICIAL RESPIRATION – INDICATIONS

- **No Respiration**
- **But Heart continues to beat**
- Drowning
- Suffocation in smoke
- Paralysis of Respiratory muscles
- Electric shock

SELECT THE PROPER METHOD

- If **Drowning – Select methods which are done** in **prone position**
- Schafer's method (Prone pressure method)
- Holger Neilson's method (Arm lift back pressure method)

TYPES OF ARTIFICIAL RESPIRATION

- Prone – **Schafer's method**

(Prone pressure Method)

- **Holger Neilson's method**

(Arm lift back pressure method)

- **Sylvester's method**

(Arm lift chest pressure method)

- **Mouth to mouth respiration**

ARTIFICIAL RESPIRATION – PRECAUTIONARY MEASURES

- Tight clothes should be loosened
- Patient is kept warm
- Froth from mouth & nose is cleaned
- Denture is removed
- Patient is taken to fresh atmosphere

SCHAFER'S METHOD
(PRONE PRESSURE METHOD)

1) Doctor kneels near patient's waist

2) Put **palm on patient's side**

3) By bending forward doctor will apply Pressure

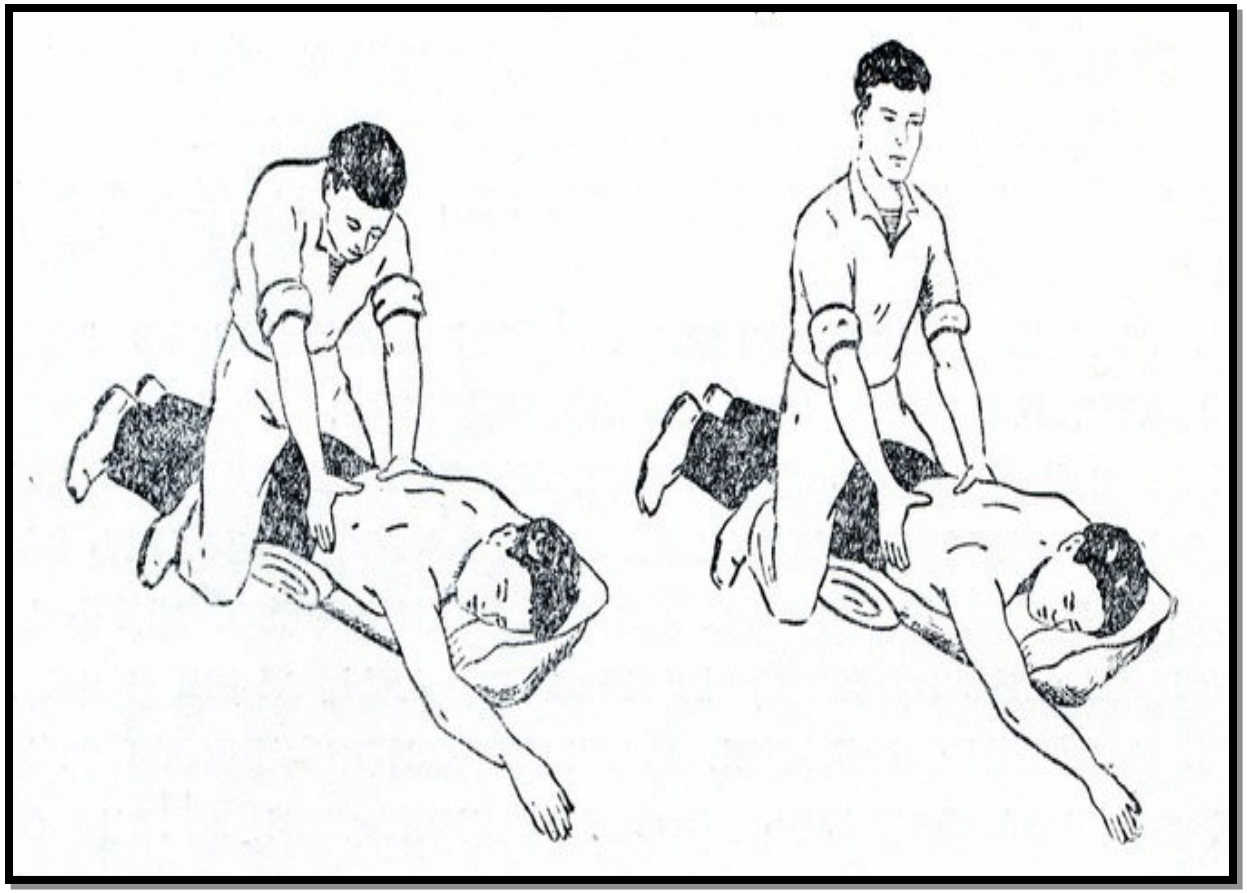
4) Pushing abdominal viscera up to bring about expiration

5) When doctor is pressing on loin ,expiration takes place ,when doctor is **bending backward** Inspiration takes place

6) Inspiration lasts for 3 sec ,expiration lasts for 2 sec

7) This is roughly judged by saying words 1,2 & 1,2,3

SCHAFER'S METHOD



SCHAFER'S METHOD

- Main advantage of Schafer's method is it's prone position. So **water from abdomen &** lungs can be **easily drained & lungs can be** easily drained
- It is very simple method, non tiring. It can be continued for long time.
- If there are injuries to thorax or back ,this method can be used .
- Only **disadvantage of this method is that ,** inspiration is passive & expiration is active, which is **un physiological**
- If there are injuries of abdomen ,this method can not be applied

HOLGER NEILSON'S METHOD (ARM LIFT BACK PRESSURE METHOD)

1) This is also in **prone position**

2) Doctor kneels near patient's head, facing towards him

3) Doctor will **pull his arms up .This will bring**

about Inspiration

4) Then doctor will leave his hands on side & put his **palms on patient's scapulae &** bending forward he will apply deep pressure on his chest .This will cause expiration

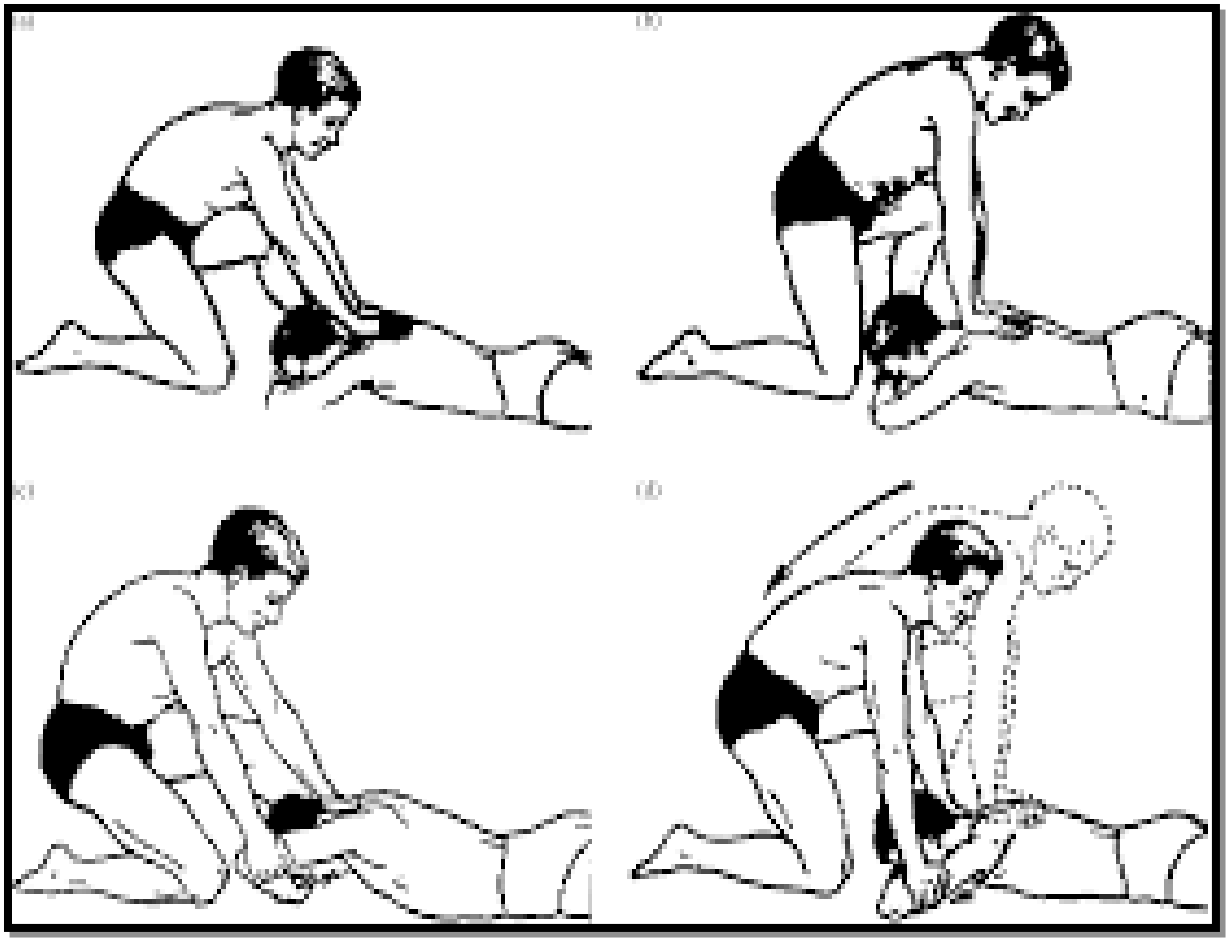
HOLGER NEILSON'S METHOD

5) Inspiration for 3 sec & Expiration for 2 sec. Say 1,2,3 & 1,2

6) Main advantage of this method is **adequate drainage of water from abdomen & thorax.** So this is a good method in cases of drowning

7) If there are **injuries to abdomen ,this** method can be used

HOLGER NEILSON'S METHOD



HOLGER NEILSON'S METHOD

8) Both inspiration & Expiration are active , so good ventilation is obtained

9) Only disadvantage of this method is that this is tiring method .So it needs assistance

10) Similarly if there are **injuries of scapulae** ,this method **can not be used**

SYLVESTER'S METHOD
(ARM LIFT CHEST PRESSURE METHOD)

1) It is in **Supine position**

2) **Pillow is given below shoulder & neck is** fully extended

3) Doctor will kneel near patient's head ,facing towards him

4) He will catch patient's wrist & by bending forward he will pull **patient's arms up .This** will cause Inspiration

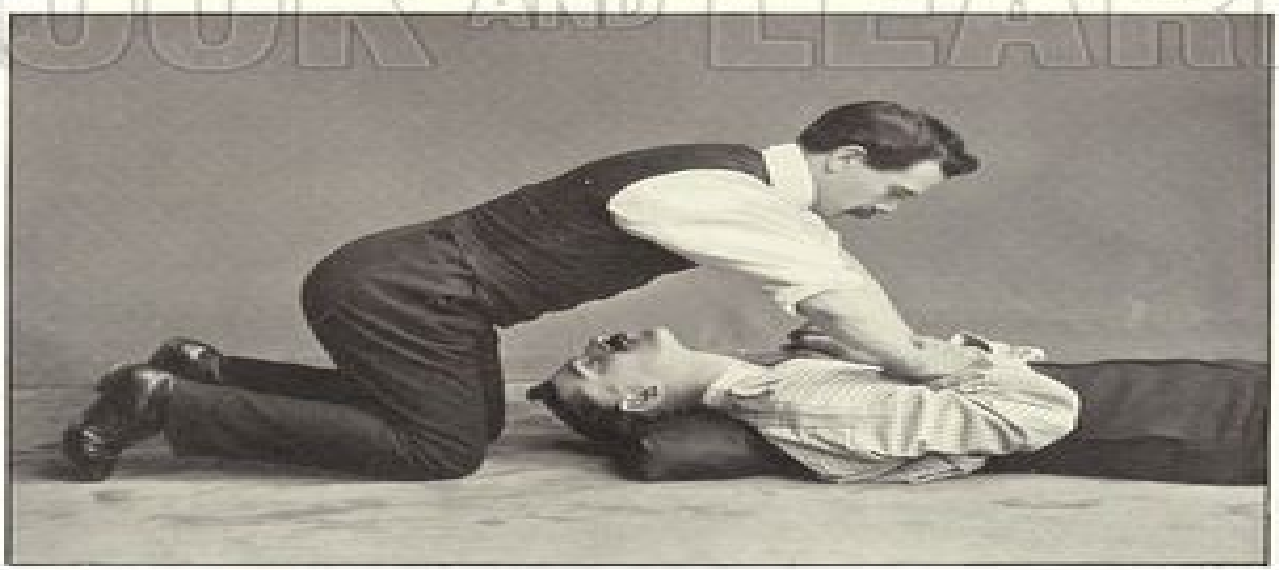
SYLVESTER'S METHOD (ARM LIFT CHEST PRESSURE METHOD)

5) Then bending forward ,he will **put deep pressure on chest ,with patient's hands .This** will cause expiration

6) Inspiration should lasts for 3 sec & expiration for 2 sec

7) Main advantage of this method is both **inspiration & expiration are active ,so good** ventilation is obtained

FIRST MOVEMENT



SECOND MOVEMENT

ARTIFICIAL RESPIRATION: SYLVESTER'S METHOD

SYLVESTER'S METHOD

8) Disadvantages are ,as patient is in supine position ,there is **no drainage of water from** lungs .So this method should **not be used in** cases of **drowning**

9) This is tiring method ,so assistance is needed

10) If there is **rib fracture or thorax # ,this** method can **not be used**

MOUTH TO MOUTH RESPIRATION

1) It is the best method of artificial respiration

2) Doctor kneels near patient's neck ,facing towards him .

3) **Pillow is given below shoulder, so as to**

extend neck fully

4) With left hand patient's **nostrils are closed. Tissue paper or handkerchief is put on** patient's mouth.

5) Doctor will **blow expired air in patient's** mouth .This will cause inspiration

6) By taking mouth away ,expiration occurs passively

7) Advantages of this method are giving expired air ,which contain **CO2 ,which stimulate patient's respiratory center .Good** ventilation is obtained

MOUTH TO MOUTH RESPIRATION

MOUTH TO MOUTH RESPIRATION

8) Inspiration is active ,expiration is passive, which is physiological

10) It is the best method of Artificial respiration in new born babies

11) Only **disadvantage of this method – As**

this is in **supine position ,water from** abdomen, if it is **not drained may regurgitate** back into the lungs & then may lead to respiratory infection

THANK YOU…

Respiratory system

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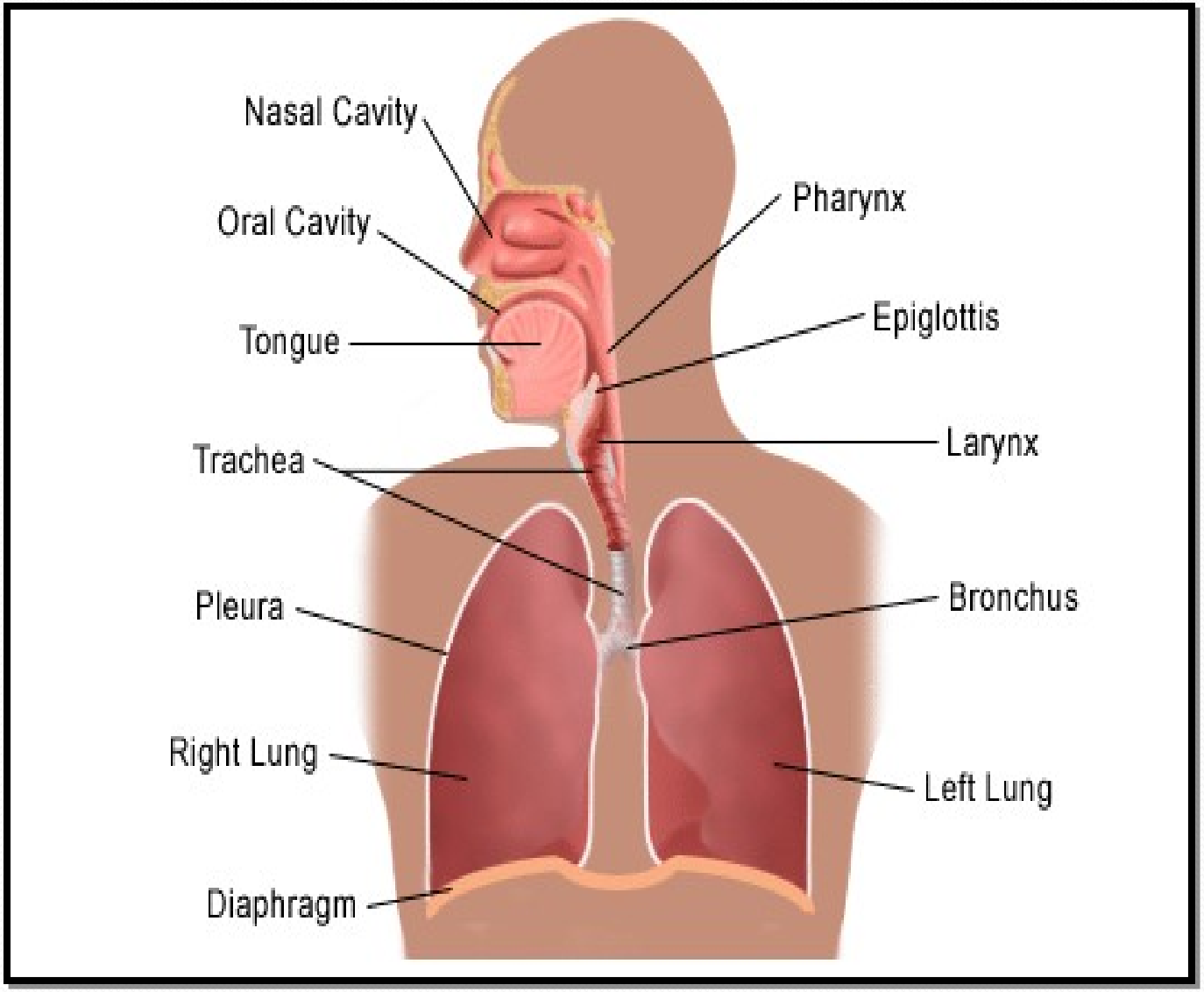
Introduction

- **Definition:** System performing the function of gas exchange (O2& Co2) between the body cells & external environment/ atmosphere.
- **External respiration**: exchange of gases between atmosphere & blood
- **Internal/ tissue respiration**: exchange of gases between blood & body cells

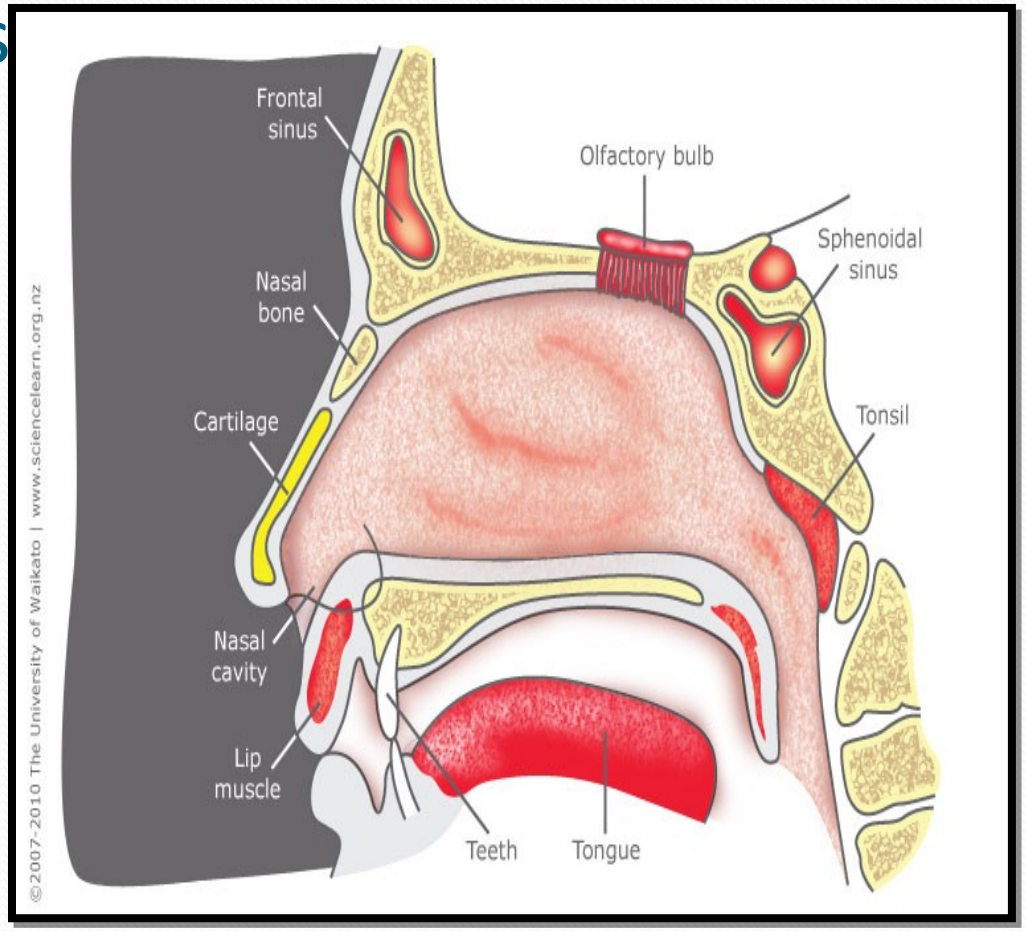

Nasal Cavity
Oral Cavity
Tongue
Trachea
Pleura
Right Lung
Diaphragm
Pharynx
Epiglottis
Larynx
Bronchus
Left Lung

Parts of respiratory s

- **Nose:**

- Organ of smell

- Ensures warm, moistened & filtered air to the lungs



- **Pharynx:**

-Organ of respiratory & digestive system

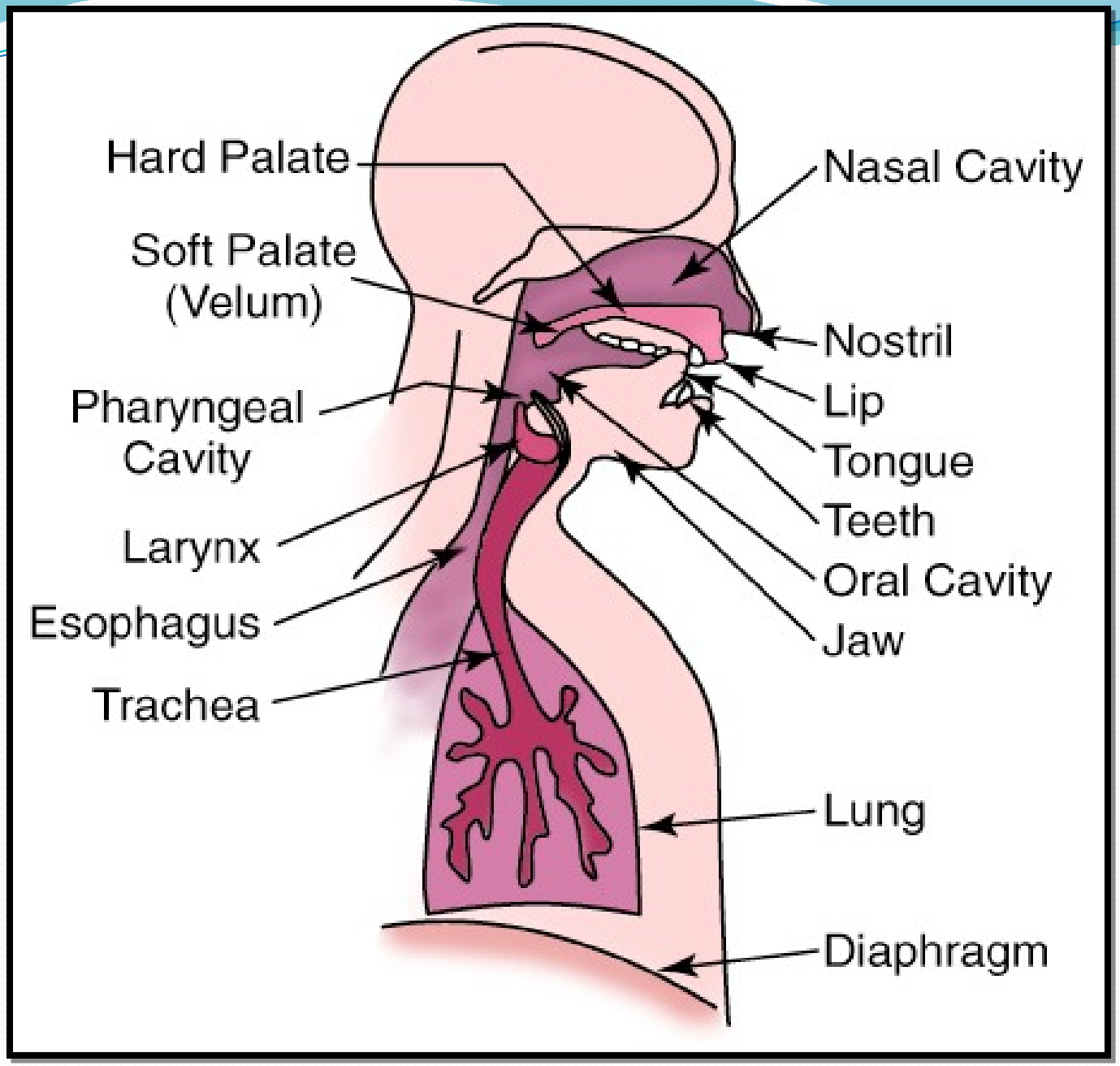
-Contains lymphatic tissues to prevent microbes from entering to the body

- **Larynx:**

- Composed of pieces of cartilages-

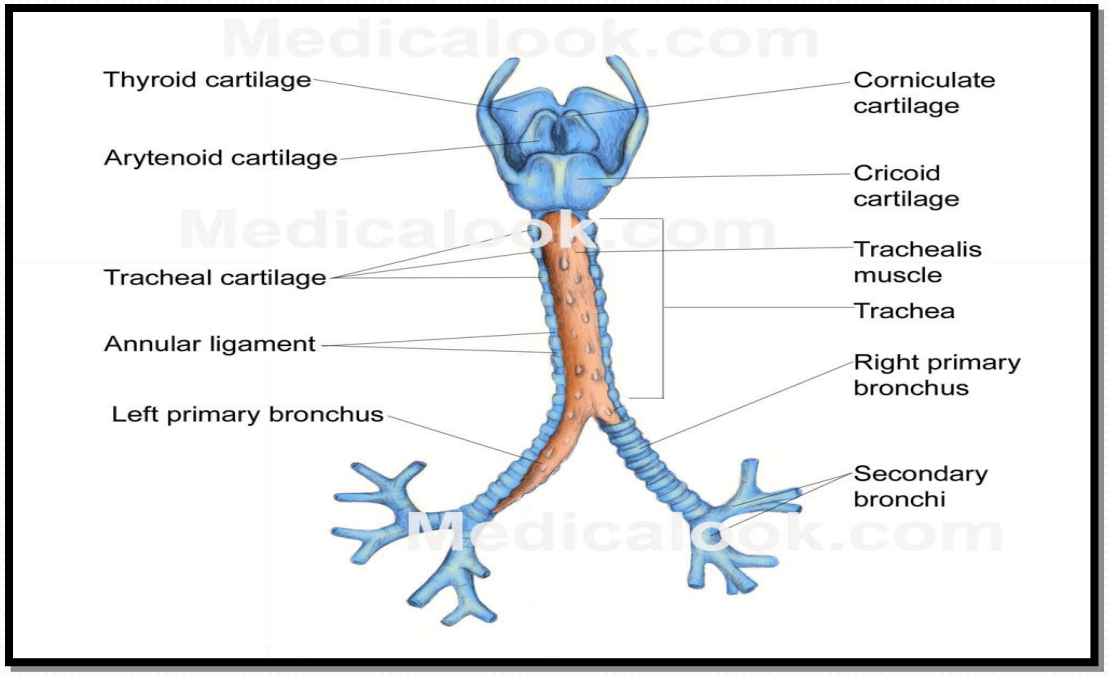
- Thyroid (1), cricoid (1), arytenoid (2), cuneiform & corniculate (2 each)

- Contains vocal cord, which produces sounds of varying loudness & pitch.

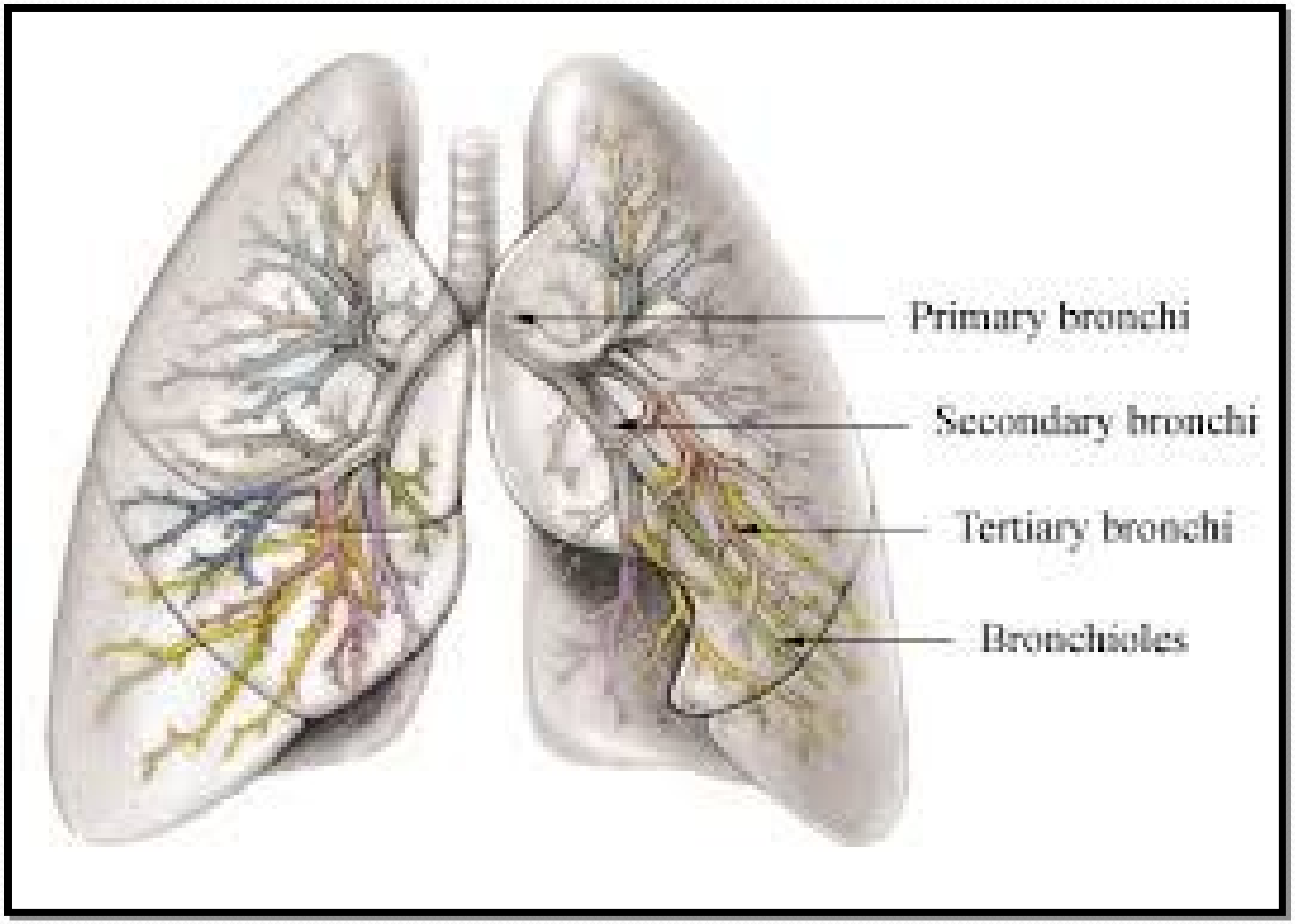

Hard Palate
Soft Palate
(Velum)
Pharyngeal
Cavity
Larynx
Esophagus
Trachea
Nasal Cavity
Nostril
Lip
Tongue
Teeth
Oral Cavity
Jaw
Lung
Diaphragm

- **Trachea (windpipe):**

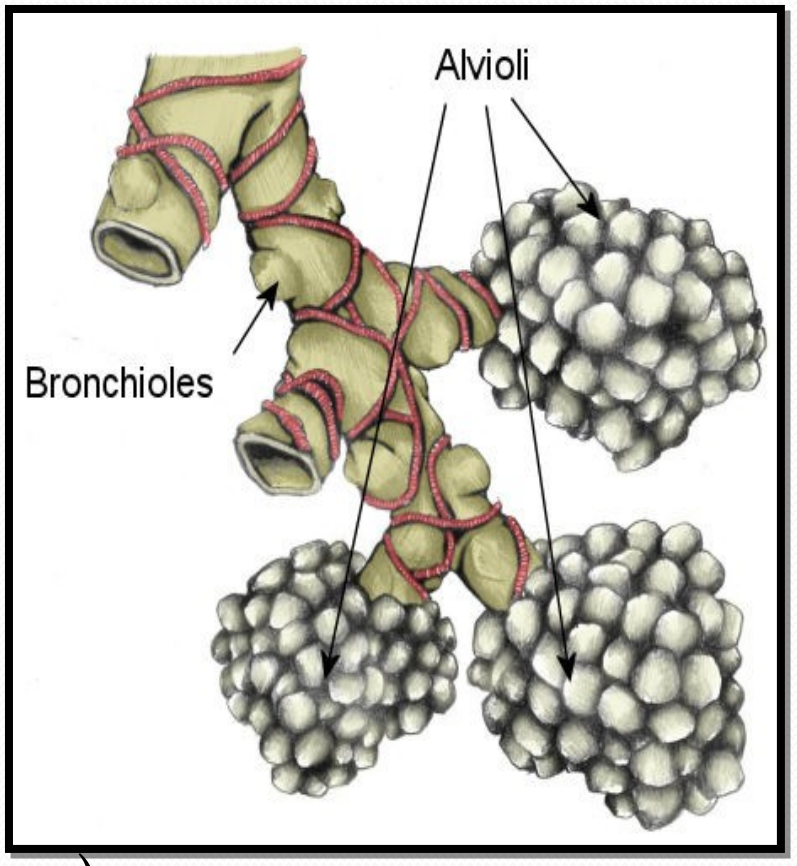
- It divides the tract into two smaller tubes - **bronchi**
- It is 4 inches long and less than an inch in diameter.
- Composed of about 20 rings of tough cartilage.
- The back part of each ring is made of muscle and connective tissue.



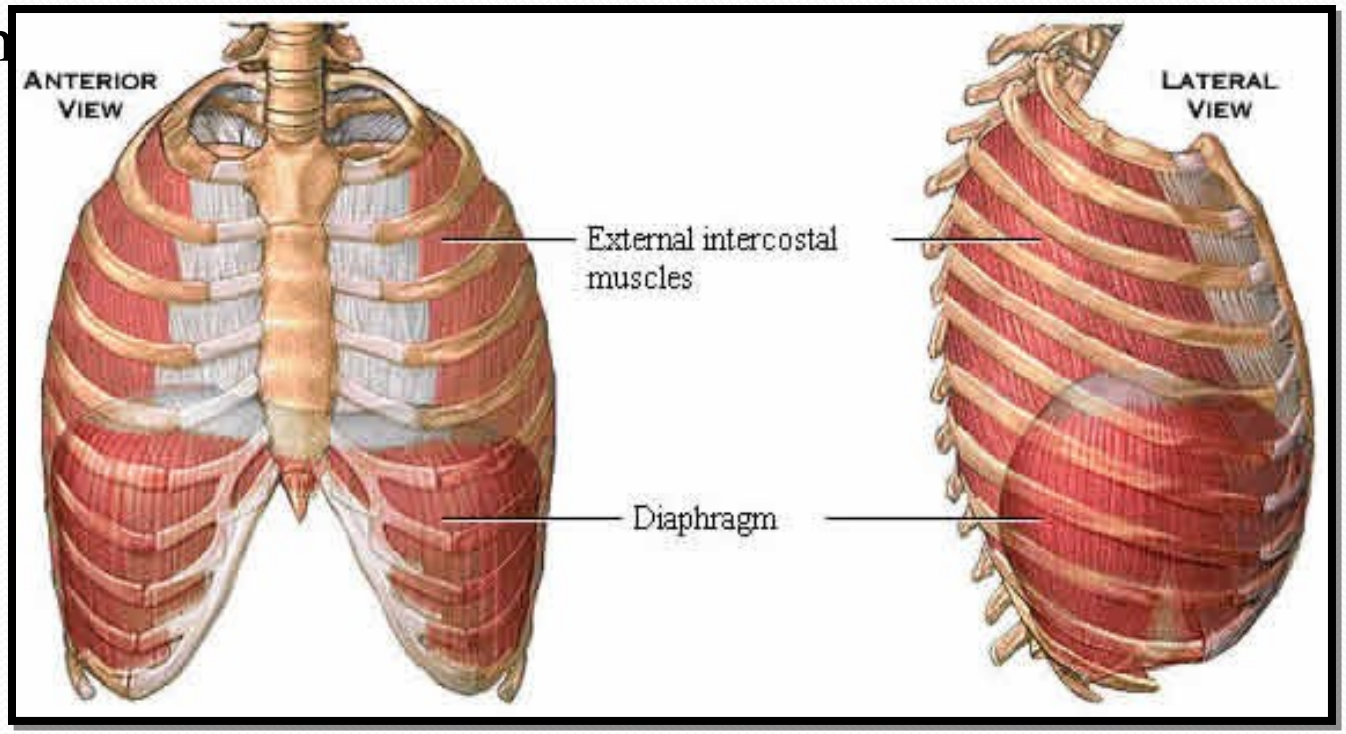
- **Bronchi:**
- The **bronchi** (singularly known as a **bronchus**) are extensions of the trachea that transport air to and from the lungs.
- Acts as passage for gas exchange, with oxygen going to the lungs and carbon dioxide leaving the lungs through them.
- **Bronchioles:**
- Begin at the end of the bronchi. The main bronchus divides into bronchioles. Bronchioles divides like the branches of a tree upto the alveoli. The **alveoli** are the air sacs at which the exchange of oxygen and carbon dioxide takes place. The bronchioles are divided into 3 types- primary, secondary, tertiary.


Primary bronchi
Secondary bronchi
Tertiary bronchi
Bronchioles

- **Lungs:**
  - imp. organ of respiration
  - Cone shaped structure,
  - lies in the thoracic cavity.
  - Right lung- 3 lobes,
  - left lung- 2 lobes
  - Lung tissues are thickly Supplied with blood vessels.
  - **Alveoli** are the structural & functional unit of lungs for respiration (for the exchange of gases)



- **Intercostal muscles & Diaphragm:**
- They contract (inspiration) & relax (expiration) continuously.
- 11 pairs of muscles, present between the ribs
- Diaphragm is muscular flap which separates thoracic cavity fron

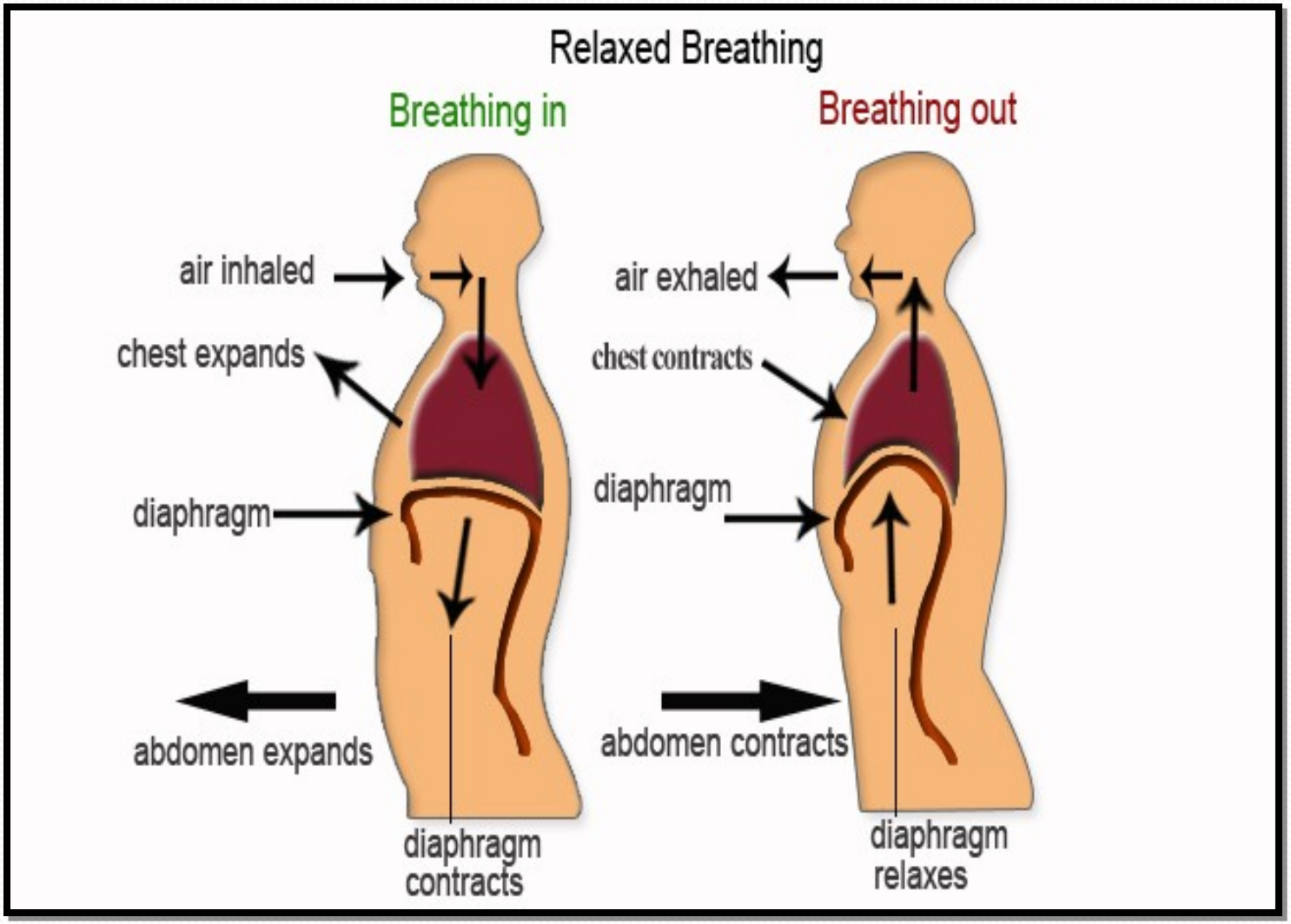


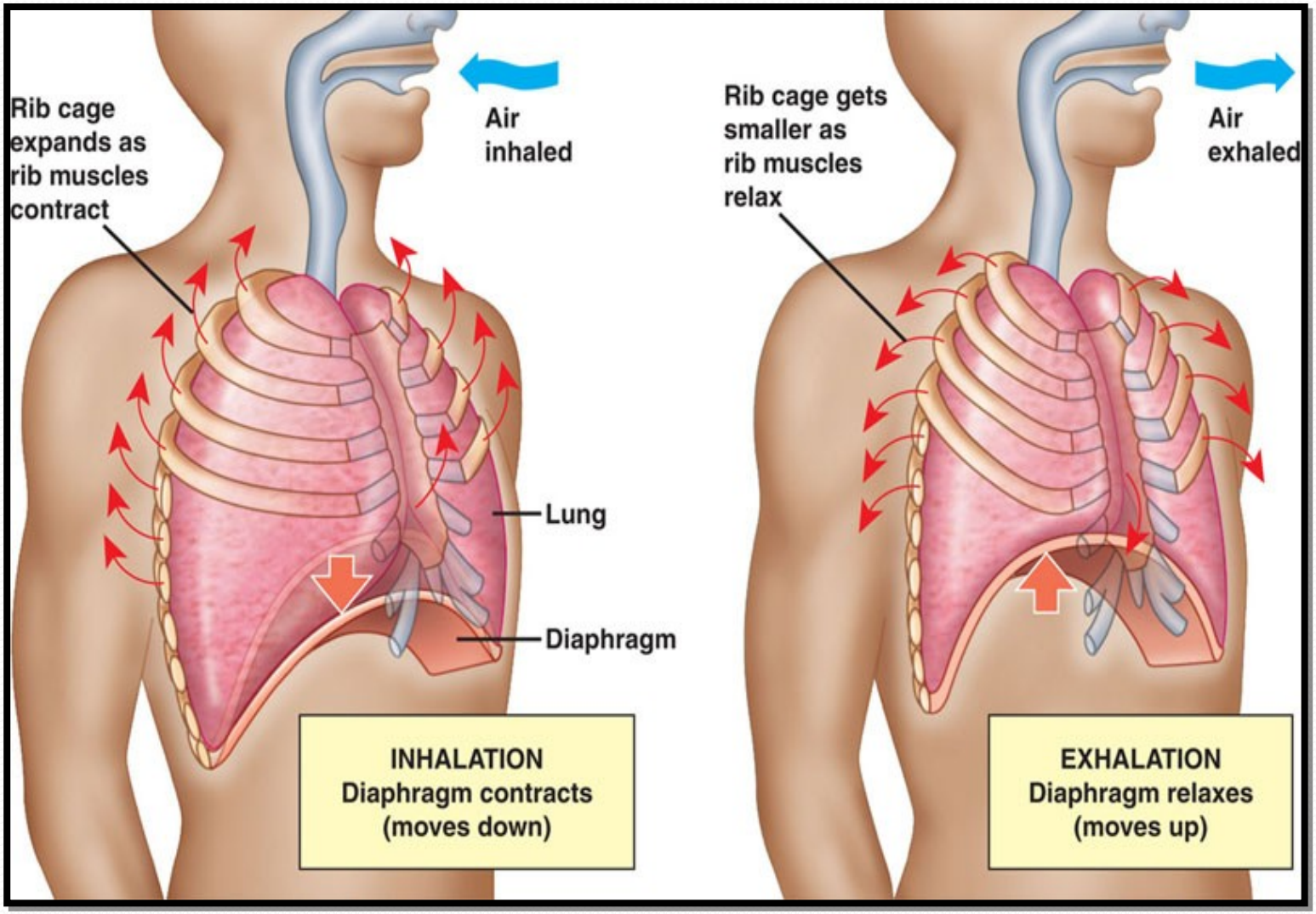
Mechanism of respiration

- 3 phases:
- **Inspiration: Air containing oxygen is taken in.**

  Nose- nostrils- pharynx- larynx- trachea- bronchi- bronchioles- alveoli- pulmonary capillaries- blood- Hb of RBCs- Heart- Arteries- other body parts
- **Expiration: CO_2 is expel out through nose & mouth.**

  Pulmonary capillaries- Alveoli- bronchioles- bronchi- trachea- larynx- pharynx- nostrils- nose
- Pause


Relaxed Breathing
Breathing in
Breathing out
air inhaled
chest expands
diaphragm
abdomen expands
diaphragm contracts
air exhaled
chest contracts
diaphragm
abdomen contracts
diaphragm relaxes


Rib cage expands as rib muscles contract
Air inhaled
Lung
Diaphragm
INHALATION
Diaphragm contracts
(moves down)
Rib cage gets smaller as rib muscles relax
Air exhaled
EXHALATION
Diaphragm relaxes
(moves up)

Definitions & physiological values

- **Vital capacity**- Volume of air that passes into & out of the lungs during respiration. (3-5 lit.)
- **Tidal volume**- Amount of air which is inspired & expired in an normal breathing. (500 ml)
- **Inspiratory reserve volume**- Amount of air that can be breathed by deepest inspiration. (1800-2000 ml)
- **Expiratory reserve volume**- Amount of air that can be expel out by most forceful expiration. (1400 ml)
- **Residual volume**- Amount of air that remains in the lungs after most forceful expiration. (1200-1500 ml)

Thank You..