



# Respiratory System

# Objective



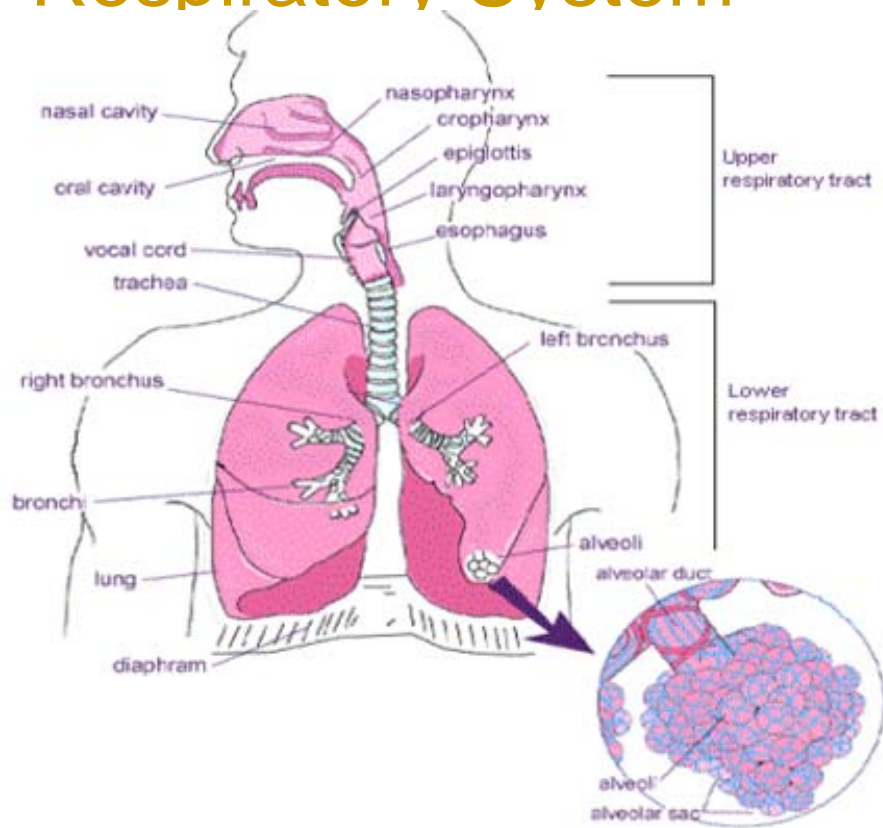
- ☐ Identify components of the conducting and respiratory portions of the respiratory system.
- ☐ Discuss overview of gas exchange.
- ☐ Describe other functions of the respiratory system.

# Introduction



- ❑ Divided anatomically:
  - upper respiratory tract
  - lower respiratory tract.
- ❑ Divided functionally:
  - Conducting portion (transports air)
    - Nose, nasal cavity, pharynx, larynx, trachea, bronchi, terminal bronchioles
  - Respiratory portion (gas exchange)
    - Bronchioles, alveolar ducts, alveoli

# Respiratory System

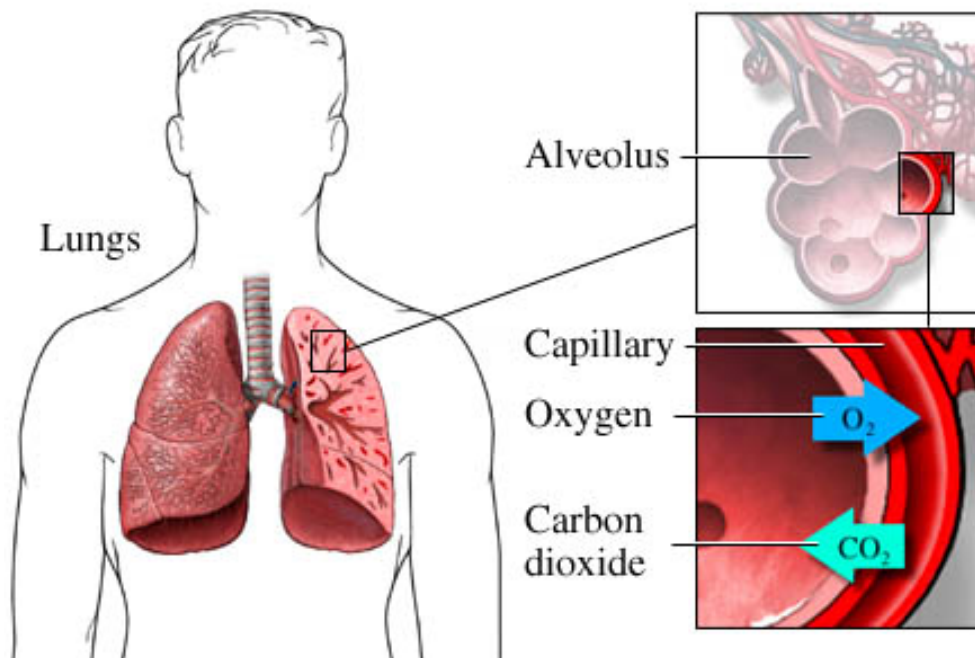


# Functions

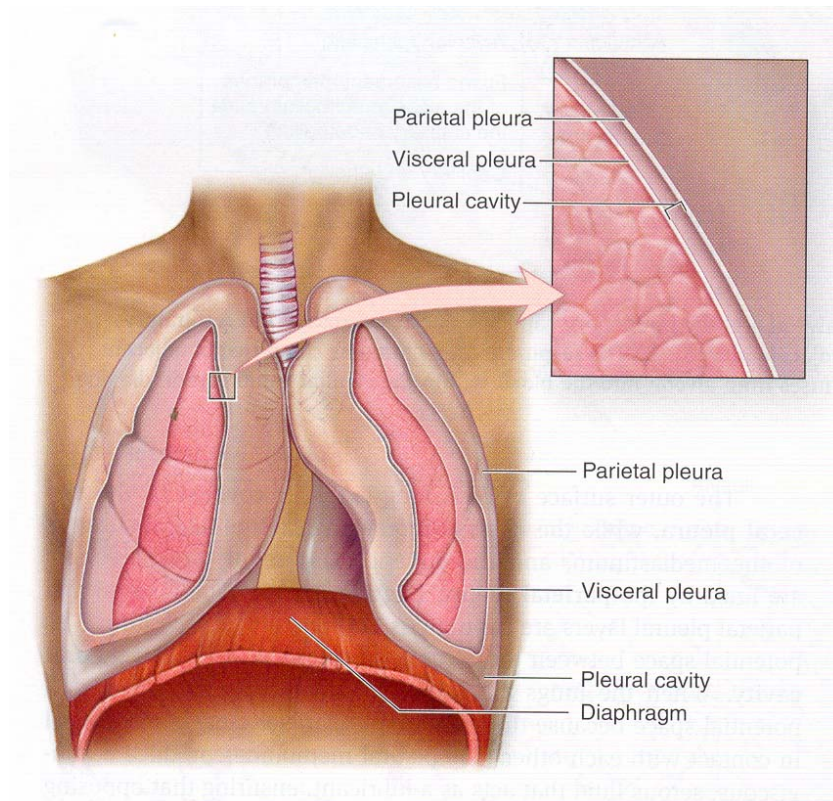


- ☐ Breathing / pulmonary ventilation (gas exchange)
  - Inhalation (inspiration)
    - Draws gases into the lungs.
  - Exhalation (expiration)
    - Forces gases out of the lungs.
- ☐ Gas conditioning
- ☐ Sound production
- ☐ Olfaction (smell)
- ☐ Defense (protect body from infection by airborne molecules)

# Gas Exchange

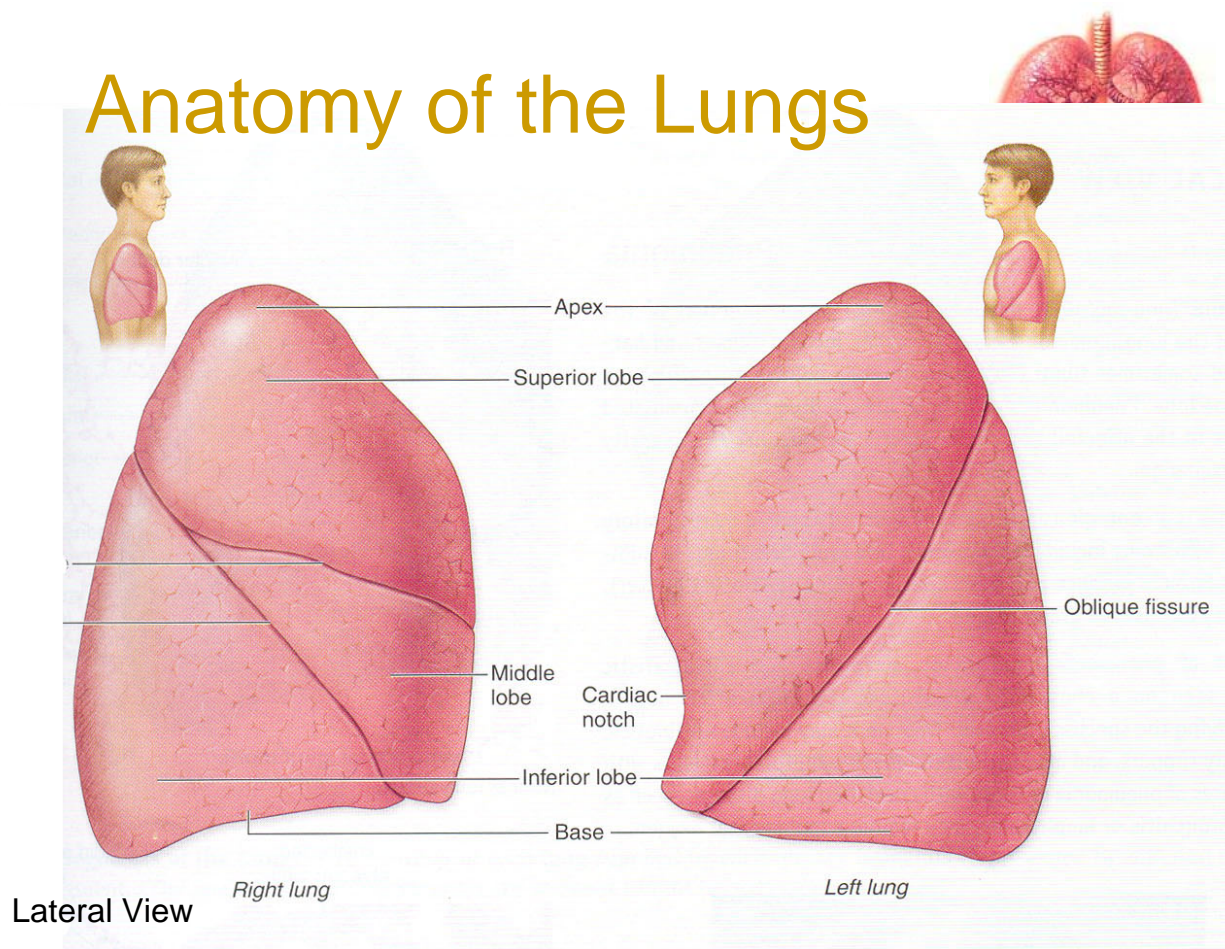


# Lungs



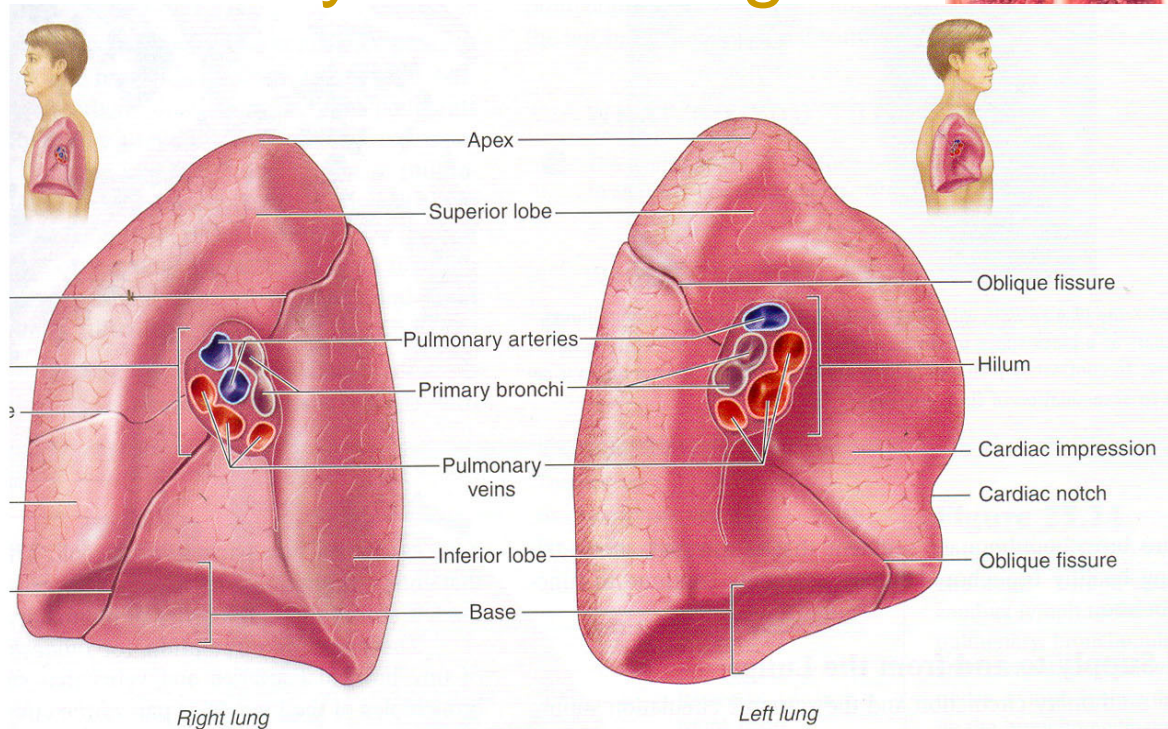


# Anatomy of the Lungs



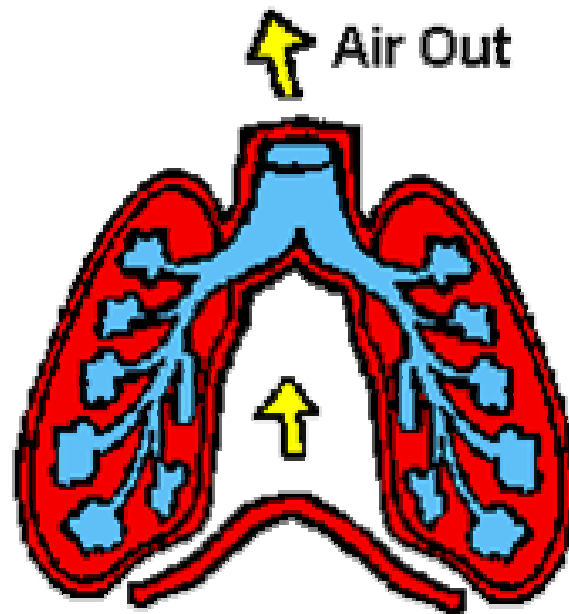


# Anatomy of the Lungs



Medial View

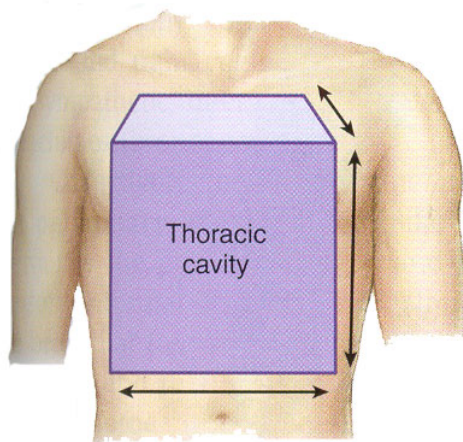
# Inhalation & Exhalation



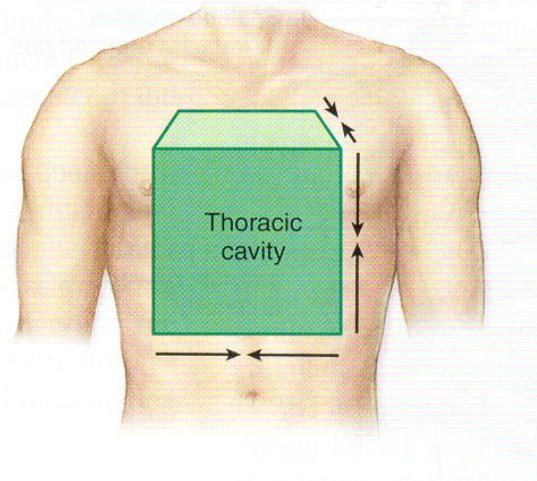
# Inhalation & Exhalation



Inhalation



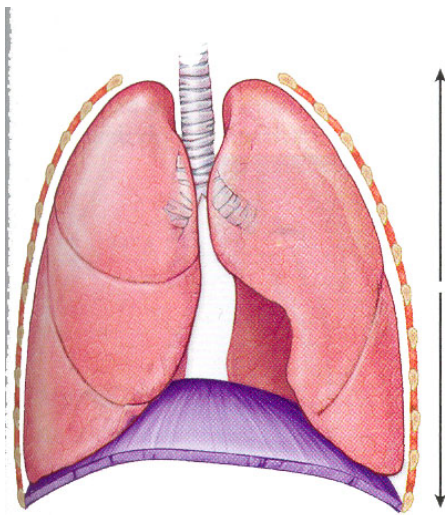
Exhalation



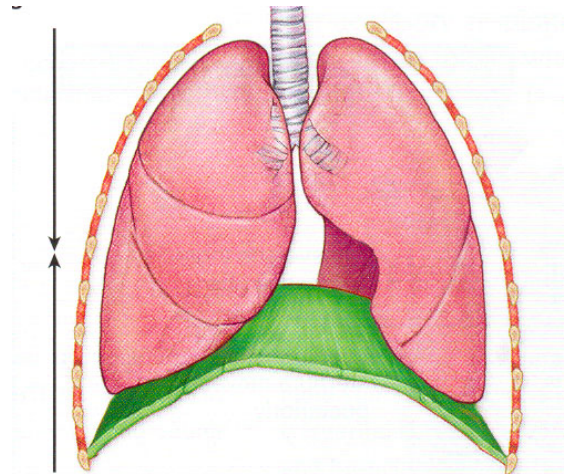
# Inhalation & Exhalation



## Vertical Changes



Diaphragm contracts; vertical dimensions of thoracic cavity increase.



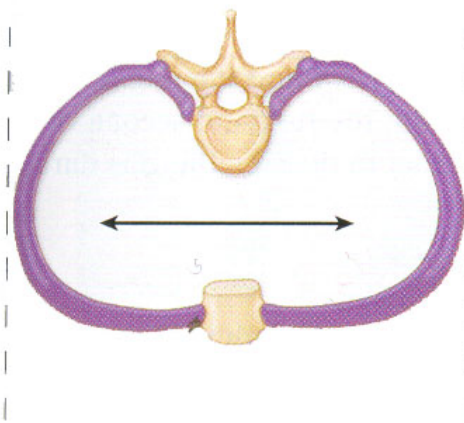
Diaphragm relaxes; vertical dimensions of thoracic cavity narrow.

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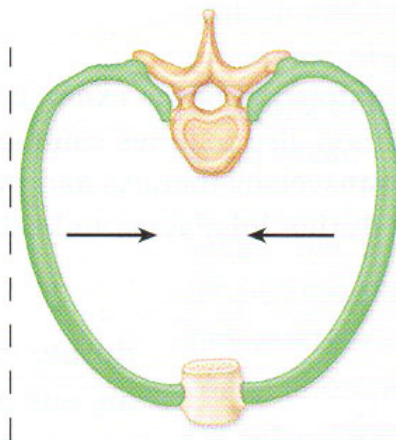
# Inhalation & Exhalation



## Lateral Changes



Ribs elevated and thoracic cavity wide



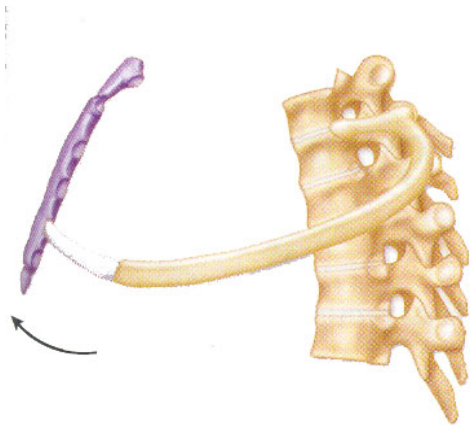
Ribs depressed and thoracic cavity narrows.



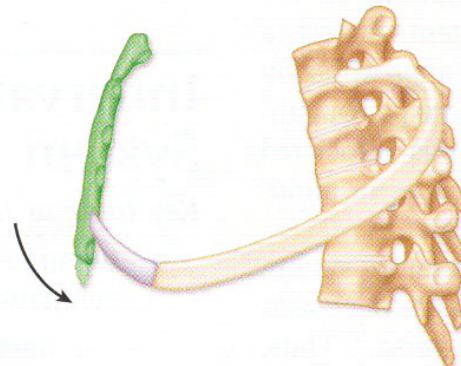
# Inhalation & Exhalation



## Anterior-posterior changes



Inferior portion of sternum moves anteriorly.

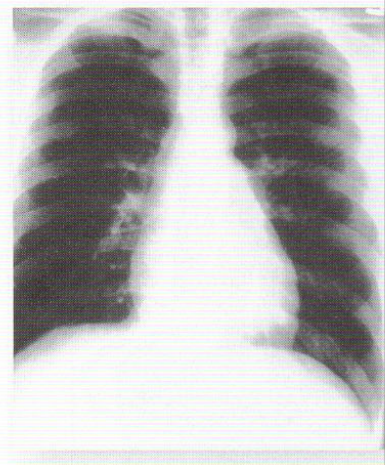
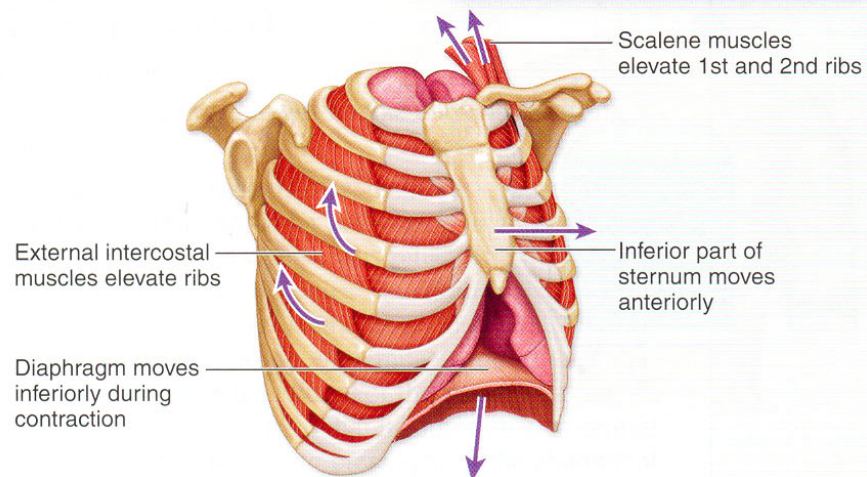


Inferior portion of sternum moves posteriorly.

# Muscles Involved in Respiration



## Inhalation

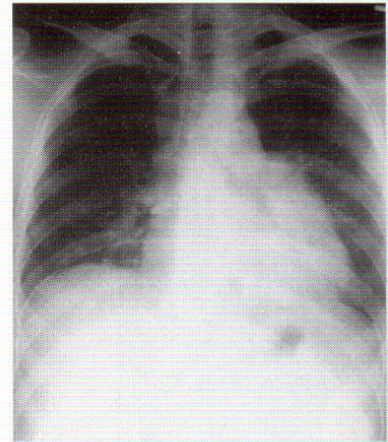
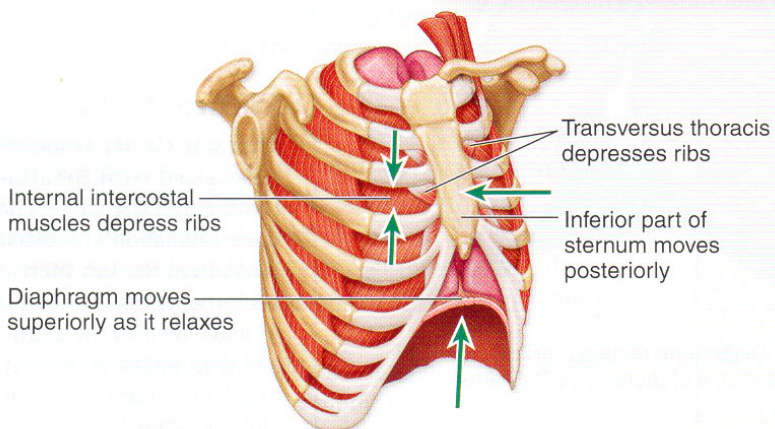




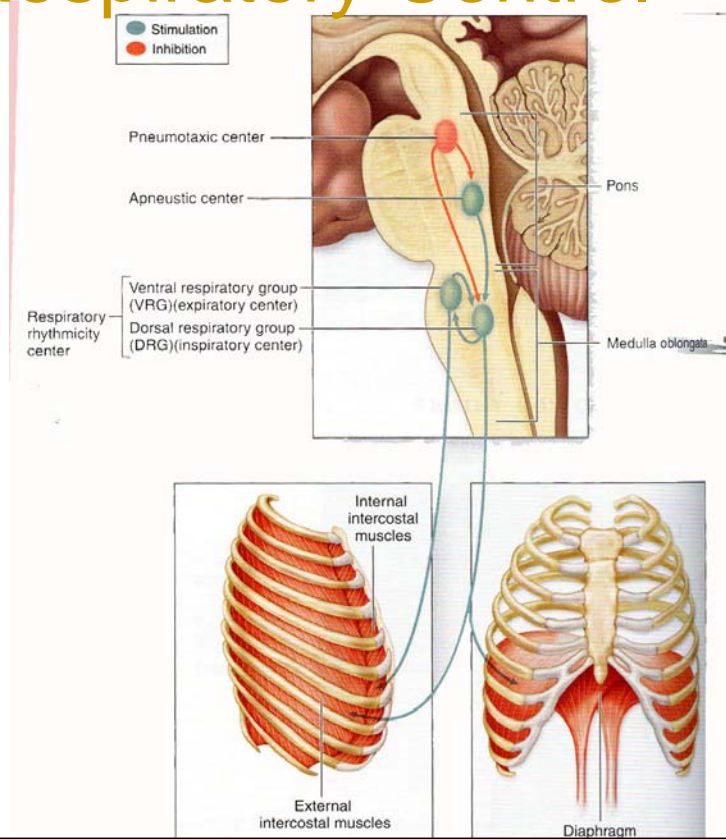
# Muscles Involved in Respiration



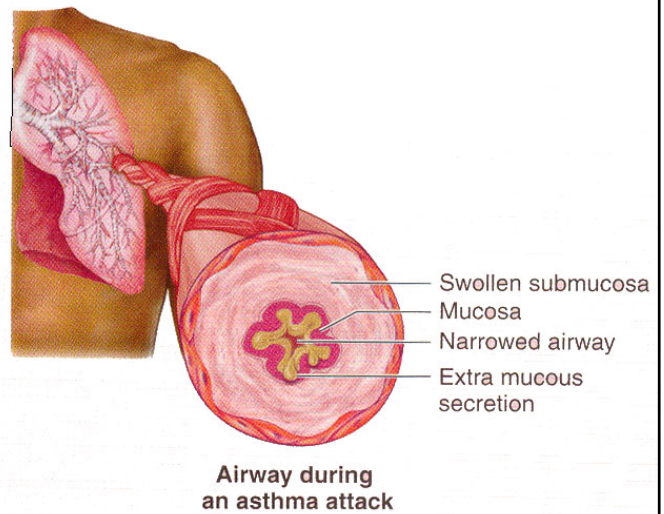
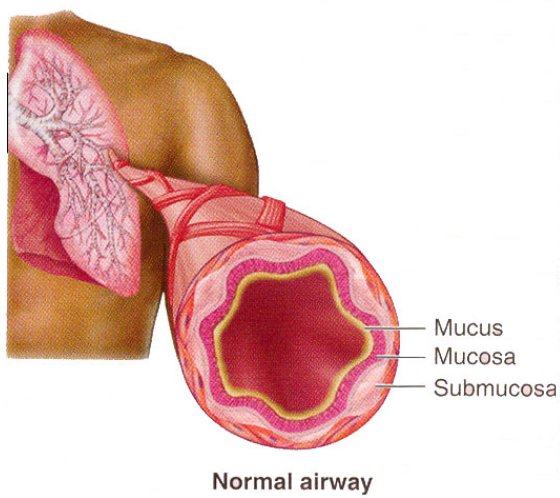
## Exhalation



# Respiratory Control



# Asthmatic's Lung



# Smoker's Lung

