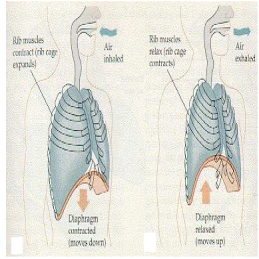


What is Human Respiration?

- **Goal:** The human respiratory system allows one to obtain **oxygen**, eliminate **carbon dioxide**.
- Breathing consists of two phases, inspiration and expiration
 - **Inspiration**- the process of taking in air
 - **Expiration**- the process of blowing out air

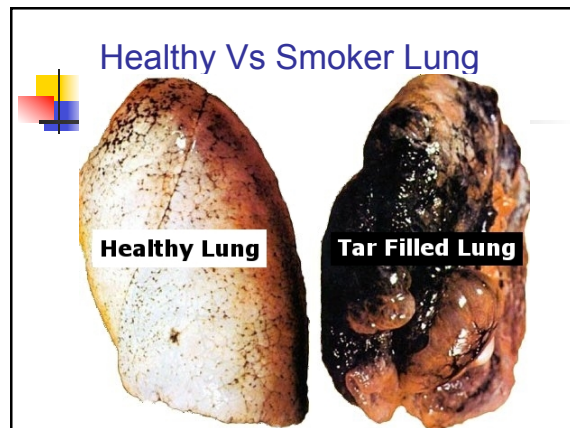


Organs in the Respiratory System

STRUCTURE	FUNCTION
nose / nasal cavity	warms, moistens, & filters air as it is inhaled
pharynx (throat)	passageway for air, leads to trachea
larynx	the voice box, where vocal chords are located
trachea (windpipe)	keeps the windpipe "open" trachea is lined with fine hairs called cilia which filter air before it reaches the lungs
bronchi	two branches at the end of the trachea, each lead to a lung
bronchioles	a network of smaller branches leading from the bronchi into the lung tissue & ultimately to air sacs
alveoli	the functional respiratory units in the lung where gases are exchanged

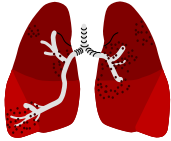
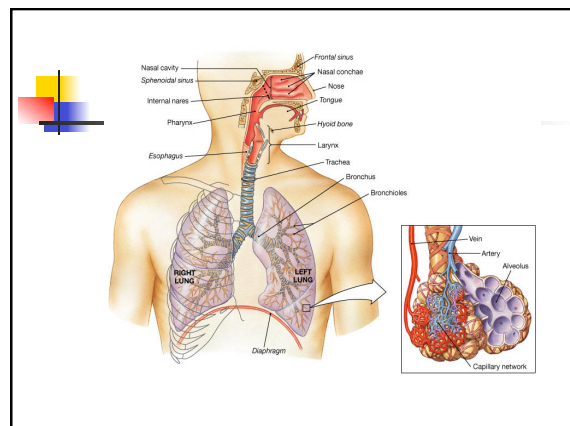
Diseases of the Respiratory System

asthma	severe allergic reaction characterized by the constriction of bronchioles
bronchitis	inflammation of the lining of the bronchioles
emphysema	condition in which the alveoli deteriorate, causing the lungs to lose their elasticity
pneumonia	condition in which the alveoli become filled with fluid, preventing the exchange of gases
lung cancer	irregular & uncontrolled growth of tumors in the lung tissue



Structures of Respiratory System

- **upper** respiratory tract
 - nose, mouth, pharynx, epiglottis, larynx and trachea
- **lower** respiratory tract
 - bronchial tree and lungs

Alveoli

- air sacs
- alveolar wall membranes one cell thick and surrounded by capillaries
- gas exchange takes place here

Respiratory Zone of Lower Respiratory Tract

(a)

(b)

Copyright © 2004 Pearson Education, Inc., publishing as Benjamin Cummings.

Lungs

Right-3 lobes

Left-2 lobes

trachea

<http://www.youtube.com/watch?v=HIT621PrO0>

Diaphragm

- Muscle separating chest and abdomen
- inspiration, diaphragm contracts and increases thoracic space
 - air flows in
- expiration, diaphragm relaxes and decreases thoracic space
 - air flows out

Start at 7min