

# Respiratory System

# The Respiratory System

- The respiratory system consists of the UPPER and LOWER respiratory tracts.
- URT includes: nose, pharynx, larynx, and trachea.
- LRT includes: bronchi and lungs
- The function of the respiratory system is to facilitate the exchange of oxygen and carbon dioxide.

- The body needs oxygen ( $O_2$ ) for carrying out its metabolic functions. As a result, carbon dioxide ( $CO_2$ ) is produced. The respiratory tract must get rid of the excess  $CO_2$  to prevent accumulation and eventual acidosis.

# Combining Forms

**Bronch/o**

**Bronchi/o**

bronchus (airway)

bronchoscope

bronchiectasis (dilation or expansion)

**Epiglott/o**

epiglottis

The epiglottis is the structure that prevents food from entering the trachea. It is a flap of tissue that constantly opens and closes.

epiglottitis

**Nas/o**

**Rhin/o**

nose

nasal

rhinoplasty (surgical repair of  
the nose. AKA, a nose job)

**Or/o**

mouth

throat)

oropharynx (mouth of

mouth)

oral (pertaining to the

**Ox/o**

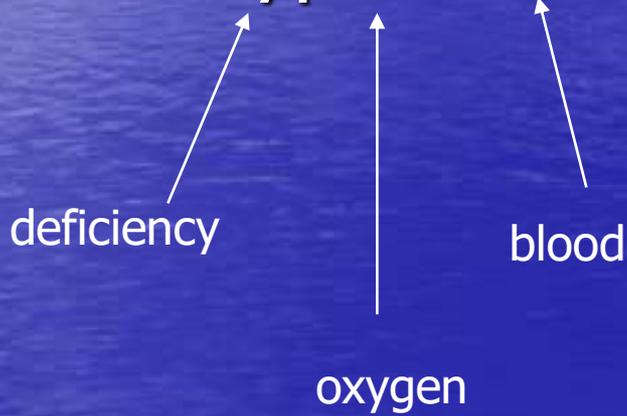
**oxygen**

**hypoxemia**

deficiency

blood

oxygen



**Pharyng/o**

pharynx (throat)

pharyngitis

**Pleur/o**

**Pleura**

**Pleuralgia**

**Pneum/o**

**Pneumon/o**

air, lung

Pneumothorax

air in the chest

Pneumonectomy

sx excision of the lung

**Pulmon/o**

lung

pulmonary

**Sinus/o**

sinus, cavity

sinusitis

**Thorac/o**

chest

thoracotomy (incision in to  
the chest)

**Tonsil/o**

tonsils

**Trache/o**

trachea

# Upper Respiratory Tract

- The external openings to the nose are called nostrils or NARES.
- As a general rule, the combining form nas/o is not used to form surgical words. Most surgical terms referring to the nose use the form rhin/o

- Air enters the nose and passes into the nasal cavity. Inside the nasal cavity, there are tiny hairs that filter out dust particles found in the air.
- The nasal cavity also contain CONCHAE, which moisten and warm the air.

- The suffix -therapy denotes treatment.

Hydrotherapy means  
treatment with water

Cryotherapy means  
treatment with cold or freezing

What is the meaning of

aerohydrotherapy

Treatment with water and air.

After passing through the nasal cavity, air then enters the pharynx, or throat.

The suffix -plegia means paralysis.

Pharyngoplegia and pharyngoparalysis both mean a muscle paralysis of the throat.

The abbreviation "CA" denotes a malignancy or cancer.

- The larynx or voice box is responsible for sound production.
- The voice box takes the sound that is produced by the air passing through it and changes the PITCH by changing shape of the cords.

- Spasms of the larynx may make breathing difficult. These laryngospasms are signs of allergic reactions.

- At the top of the larynx is a small leaf-shaped flap of cartilage known as the epiglottis.
- During swallowing, the epiglottis closes off the larynx so that food and liquid are directed into the esophagus.
- When foreign material enters the larynx (anything but food), a cough attempts to expel the material to avoid choking.

- Air passes from the larynx to the TRACHEA or WINDPIPE.
- The trachea connects the throat/larynx to the lungs.
- Anything blocking the trachea will prevent air (oxygen) from entering the lungs. A **tracheostomy** is needed to create a new opening in the trachea for air to enter.

- The trachea is composed of smooth muscle that is embedded with rings of cartilage.
- These rings provided the necessary rigidity that is needed to prevent collapsing of the tube.

- Tumors are also called NEOPLASMS.
- Neoplasms can be benign or malignant.
  
- The prefix neo- means new
- The suffix -plasm means growth
  
- Therefore, the term neoplasm means a new growth.

- Recall that a carcinoma refers to a cancerous tumor.
- A carcinoma is a tumor that originates from epithelial tissue.
- Epithelial tissue is a type of tissue that lines the body or body cavities.
- Also recall, that a benign tumor is named by adding the suffix –oma. Therefore, a benign tumor of cartilage would be called a **CHONDROMA**.

# The Lower Respiratory Tract

- The trachea divides into two branches called BRONCHI.
- Each bronchus branches to a separate lung and subdivides into increasingly smaller branches called BRONCHIOLES.
- The bronchioles are the smallest branches.

- Patients with asthma suffer from wheezing caused by spasms of the bronchi.

- These spasms are called:

bronchospasm

- A dilation of a bronchi is called

Bronchiectasis

# A Word about Size

- Something that is visible to the naked eye is called **MACROSCOPIC**.
- Something that is seen only by the use of a magnifying instrument is called **MICROSCOPIC**.

- At the end of the bronchial tree, there is a cluster of very small, grapelike air sacs.
- These air sacs are the ALVEOLI.
- The alveoli are the places where oxygen is exchanged with carbon dioxide. The alveoli are intimately associated with capillaries that allow blood cells to filter through one at a time.

- Each bronchus leads to a lung.
- Each lung is enclosed in a structure called the PLEURA.

- The suffix -pnea means breathing.
- The disorder apnea means without breathing.
- People with sleep apnea stop breathing multiple times during the night. This causes snoring and interrupted sleep patterns.
- What do these terms mean?

dyspnea

painful breathing

eupnea

normal breathing

\*\*The prefix eu- means normal.

- The prefix tachy- means fast.
- The word tachypnea means rapid breathing.
- The prefix brady- means slow.
- The word bradypnea means slow breathing.

The DIAPHRAGM is a large muscle that separates the lungs from the abdominal cavity.

During inhalation, the diaphragm descends  
During exhalation, the diaphragm ascends

1. Epistaxis
2. Hypoxia
3. Pneumothorax
4. Rales
5. Rhonchi
6. Stridor
8. Acidosis
9. Adult respiratory distress syndrome
10. Atelectasis
11. Coryza
12. Croup
13. Empyema