

University of Anbar
College of Dentistry



Year: First

Course: Terminology

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Terminology

Respiratory System

The Respiratory System

- ▶ The **respiratory system** consists of a series of tubes that transport air into and out of the lungs.
- ▶ Its function is to **supply** O₂ to the body cells and to **transport** CO₂ produced by the body cells into the atmosphere.
- ▶ The respiratory organs also have important functions for **normal speech, acid–base balance, hormonal regulation of blood pressure, and defense against foreign material.**
- ▶ The respiratory system also allows humans to **perceive odors** and to **filter** and **moisten** air.

The Respiratory System

Respiration involves the following processes:

- **Pulmonary ventilation** (breathing)
- **External respiration** (diffusion of O₂ and CO₂ between air in the lungs and the capillaries)
- **Internal respiration** (diffusion of CO₂ and O₂ between blood and tissue cells)
- **Cellular respiration** (use of O₂ by the body cells in production of energy and release of CO₂ and H₂O)

Structures of the Respiratory System

The **respiratory system** brings **oxygen** into the body for transportation to the cells. It also removes **carbon dioxide** and some water waste from the body. For descriptive purposes, the respiratory system is divided into **upper** and **lower** respiratory tracts.

- The **upper respiratory tract** consists of the nose, mouth, pharynx, epiglottis, larynx, and trachea.
- The **lower respiratory tract** consists of the bronchial tree and lungs. These structures are located within, and protected by, the **thoracic cavity** which is also known as the **rib cage**.

Structures of the Respiratory System

1. Nose (nostrils): The external portion of the respiratory tract that **filters** small particles, **warms** and **humidifies** incoming air, and **receives** odors.

It is the primary organ for the sense of smell.

2. Pharynx (throat): A five-inch muscular tube that extends from the base of the skull to the esophagus. It is the **airway** that connects the mouth and nose to the larynx. Although it is a single organ, it is divided into three sections—the **nasopharynx**, **oropharynx**, and **laryngopharynx**.

Structures of the respiratory system

3. Larynx (voice box): This **connects** the pharynx with the trachea. It is a short tube shaped like a **triangular box** and is supported by **nine cartilages**, three paired and three unpaired. It contains the **vocal cords** and **supporting tissue** that make vocal sounds possible.

4. Trachea (windpipe): A four-inch-long tube, the trachea extends into the chest and serves as a **passageway** for air into the bronchi. It lies in front of the esophagus. It is kept permanently open by 16–20 C-shaped cartilaginous rings.

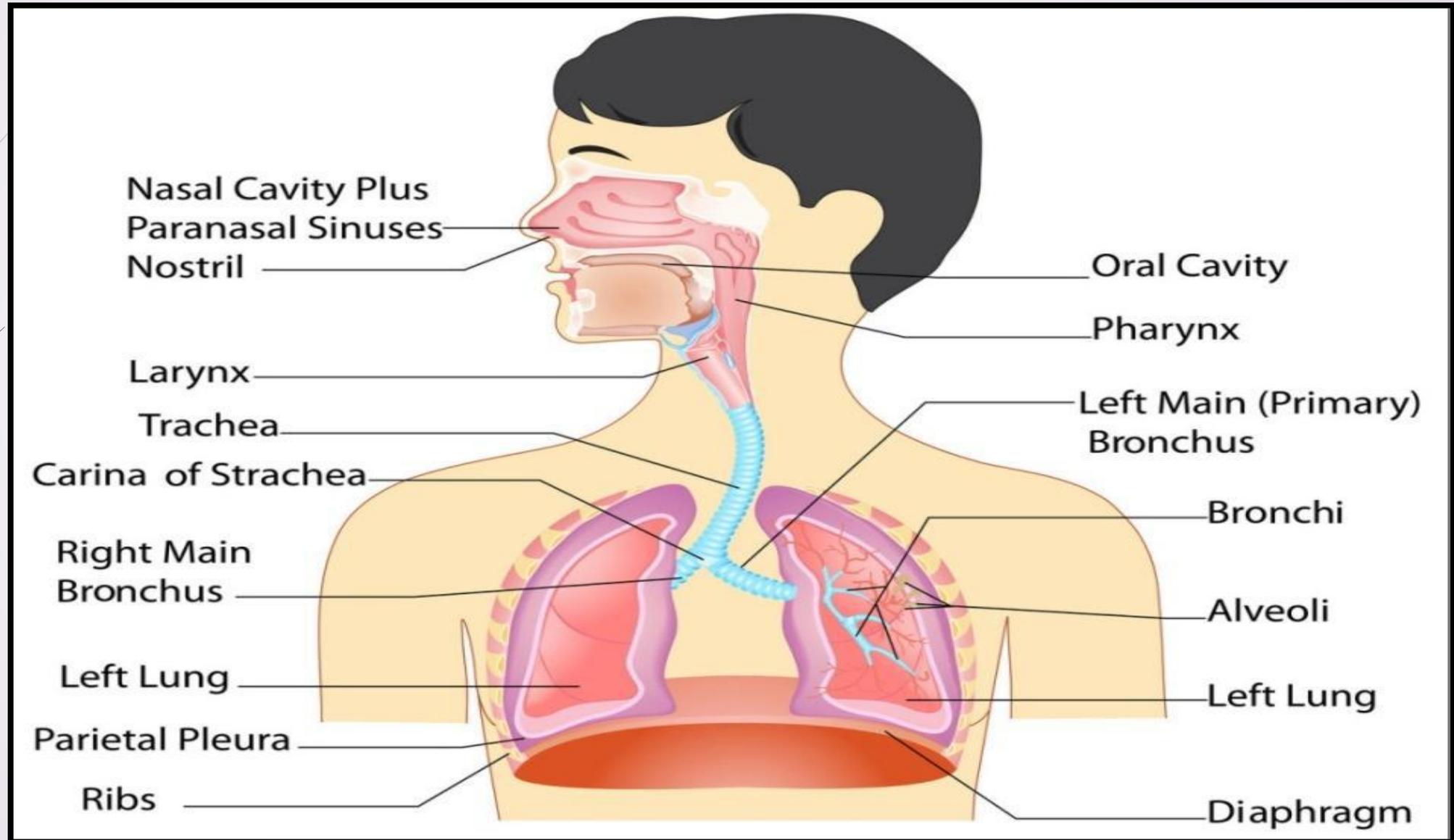
5. Bronchi: The trachea branches into two tubes called the **bronchi** (the bronchial tree). Each bronchus enters a lung.

Structures of the respiratory system

6. Lungs:

- The lung is a **cone-shaped, spongy** respiratory organ contained within the thorax.
- The **right** lung is **larger** and divided into **three** lobes.
- The **left** lung, which is **smaller** to accommodate the heart, is divided into **two** lobes.
- They are covered by the **pleura** which is a **double membrane** consisting of two layers: the **parietal pleura** (the outer layer) and the **visceral pleura** (the inner layer).

Structures of the Respiratory System



Word Parts Pertaining to the Respiratory System

Suffixes for Respiration			
Suffix	Meaning	Example	Definition of Example
-pnea	breathing	dyspnea [disp-NE-ah]	shortness of breath; painful or difficult breathing
		apnea [AP-nē-a]	absence of breathing
-oxia*	level of oxygen	hypoxia [hī-POK-sē-a]	decreased amount of oxygen in the tissues
-capnia*	level of carbon dioxide	hypercapnia [hī-per-KAP-nē-a]	increased carbon dioxide in the tissues
-phonia	voice	aphonia [ah-FO-ne-ah]	loss of voice

* When referring to levels of oxygen and carbon dioxide in the **blood**, the suffix **-emia** is used, as in *hypoxemia*, *hypercapnemia*.

Word Parts Pertaining to the Respiratory System

Roots for Respiratory Passageways

Root	Meaning	Example	Definition of Example
nas/o	nose	intranasal [in-tra-NĀ-zal]	within the nose
rhin/o	nose	rhinoplasty [RĪ-nō-plas-tē]	plastic repair of the nose
pharyng/o*	pharynx	Pharyngeal [fa-RIN-jē-al]	pertaining to the pharynx
laryng/o	larynx	laryngospasm [la-RIN-gō-spazm]	spasm (sudden contraction) of the larynx
trache/o	trachea	tracheotome [TRĀ-kē-ō-tōm]	instrument used to incise the trachea
bronch/o, bronch/i	bronchus	bronchogenic [brong-kō-GEN-ik]	originating in a bronchus
bronchiol	bronchiole	bronchiolectasis [brong-kē-ō-LEK-ta-sis]	dilatation of the bronchioles

*An **e** is added to the root before the adjective ending **-al**.

Word Parts Pertaining to the Respiratory System

Roots for the Lungs and Breathing

Root	Meaning	Example	Definition of Example
phren/o	diaphragm	phrenic [FREN-ik]	pertaining to the diaphragm
phrenic/o	phrenic nerve	phrenicectomy [fren-i-SEK-tō-mē]	partial excision of the phrenic nerve
pleur/o	pleura	pleurodesis [plū-ROD-e-sis]	fusion of the pleura
pulm/o, pulmon/o	lung	extrapulmonary [EKS-tra-pul-mō-ner-ē]	outside the lungs
pneumon/o	lung	pneumonitis [nū-mō-NĪ-tis]	inflammation of the lung; pneumonia
pneum/o, pneumat/o	air, gas; also respiration, lung	pneumothorax [nū-mō-THŌ-raks]	presence of air in the thorax (pleural space)
spir/o	breathing	spirometer [spī-ROM-e-ter]	instrument for measuring breathing volumes

Symptoms, Conditions and Disorders

Key terms	Definition
dyspnea [disp-NĒ-a]	Difficult or labored breathing, sometimes with pain; “air hunger”
anoxia [an-OK-sē-a]	Lack or absence of oxygen in the tissues; often used incorrectly to mean hypoxia
asphyxia [as-FIK-sē-a]	Condition caused by inadequate intake of oxygen; suffocation (literally “lack of pulse”)
aspiration [as-pi-RĀ-shun]	The accidental inhalation of food or other foreign material into the lungs. Also means the withdrawal of fluid from a cavity by suction
asthma [AZ-ma]	A disease characterized by dyspnea and wheezing caused by spasm of the bronchial tubes or swelling of their mucous membranes
cyanosis [sī-a-NŌ-sis]	Bluish discoloration of the skin caused by lack of oxygen in the blood (adjective: cyanotic)
sleep apnea [AP-nē-a]	Intermittent periods of breathing cessation during sleep. Central sleep apnea arises from failure of the brain stem to stimulate breathing. Obstructive sleep apnea results from airway obstruction during deep sleep, as from obesity or enlarged tonsils

Symptoms, Conditions and Disorders

Key terms	Definition
empyema [em-pī-Ē-ma]	Accumulation of pus in a body cavity, especially the pleural space; pyothorax
hemothorax [hē-mō-THOR-aks]	Presence of blood in the pleural space
hydrothorax [hī-drō-THOR-aks]	Presence of fluid in the pleural space
hyperventilation [hī-per-ven-ti-LĀ-shun]	Increased rate and depth of breathing; increase in the amount of air entering the alveoli
hypoventilation [hī-pō-ven-ti-LĀ-shun]	Decreased rate and depth of breathing; decrease in the amount of air entering the alveoli
influenza [in-flū-EN-za]	An acute, contagious respiratory infection causing fever, chills, headache, and muscle pain; “flu”
pneumonia [nū-MŌ-nē-a]	Inflammation of the lungs generally caused by infection. It may involve the bronchioles and alveoli (bronchopneumonia) or one or more lobes of the lung (lobar pneumonia)

More Terms Pertaining to the Respiratory System

- ▶ **Bronchotomy:** incision into a bronchus.
- ▶ **Bronchoscopy:** visual examination of the bronchi.
- ▶ **Laryngology:** study of the larynx and its abnormalities.
- ▶ **Laryngoplasty:** surgical repair of the larynx.
- ▶ **Pharyngotomy:** surgical incision into the pharynx.
- ▶ **Phrenoplegia:** paralysis of the diaphragm.
- ▶ **Pneumolithiasis:** the presence or formation of calculi in the lungs.
- ▶ **Pulmonologist:** a specialist who treats diseases and disorders of the lungs.
- ▶ **Rhinalgia:** pain in the nose.
- ▶ **Rhinitis:** inflammation of the inner lining of the nasal cavity.
- ▶ **Rhinodynia:** rhinalgia; pain in the nose.
- ▶ **Rhinorrhea:** discharge from the rhinal mucous membrane.
- ▶ **Tracheomegaly:** abnormal dilation of the trachea
- ▶ **Tracheorrhagia:** hemorrhage of the trachea.