

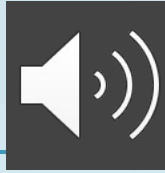
POWERPOINTS TO ACCOMPANY

Physical Change and Aging: A Guide for the Helping Professions, Seventh Edition

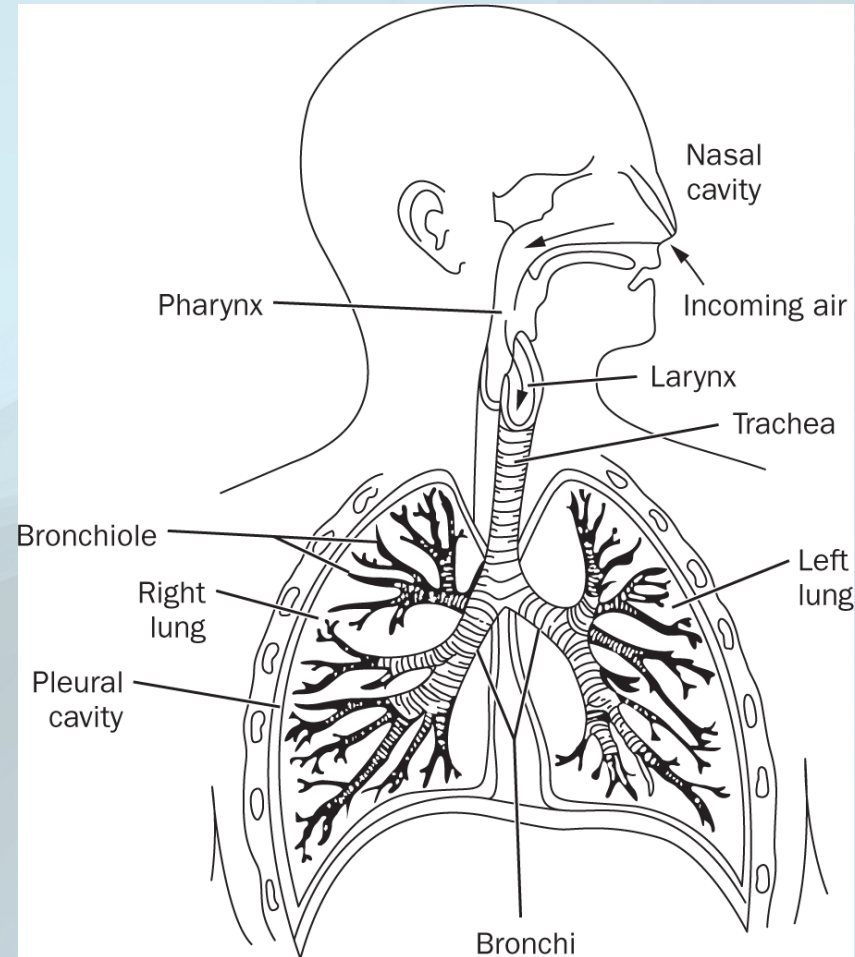
Sue V. Saxon, PhD, Mary Jean Etten, EdD, APRN, CMP, FT, and
Elizabeth A. Perkins, PhD, RNLD, FAAIDD, FGSA

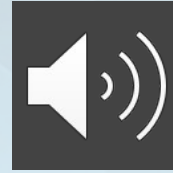
Chapter 9: The Respiratory System

Structures of the Respiratory System



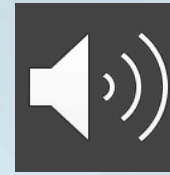
- **Air passageways**
 - **Nasal cavities**
 - **Mouth**
 - **Pharynx**
 - **Larynx**
 - **Trachea**
 - **Bronchi and bronchioles**
- **Lungs**
 - **Alveoli, alveolar ducts**
 - **Pleura, pleural fluid**





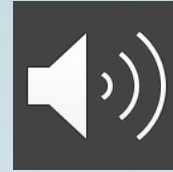
Functions of the Respiratory System

- **Breathing**
 - **Inspiration (inhalation)**
 - Diaphragm contracts and flattens, increasing chest size
 - Ribcage muscles contract; ribs move up and forward
 - Chest capacity increases, pressure in lungs decreases
 - Air is sucked in
 - **Expiration (exhalation)**
 - Diaphragm and ribcage muscles relax
 - Chest capacity decreases, pressure in lungs increases
 - Air is forced out



Functions of the Respiratory System (*cont.*)

- **Respiration**
 - **External respiration: an exchange in the lungs of**
 - Oxygen from the external environment for carbon dioxide from the blood
 - **Internal respiration: an exchange in the body cells of**
 - Oxygen from the blood for carbon dioxide from the tissues

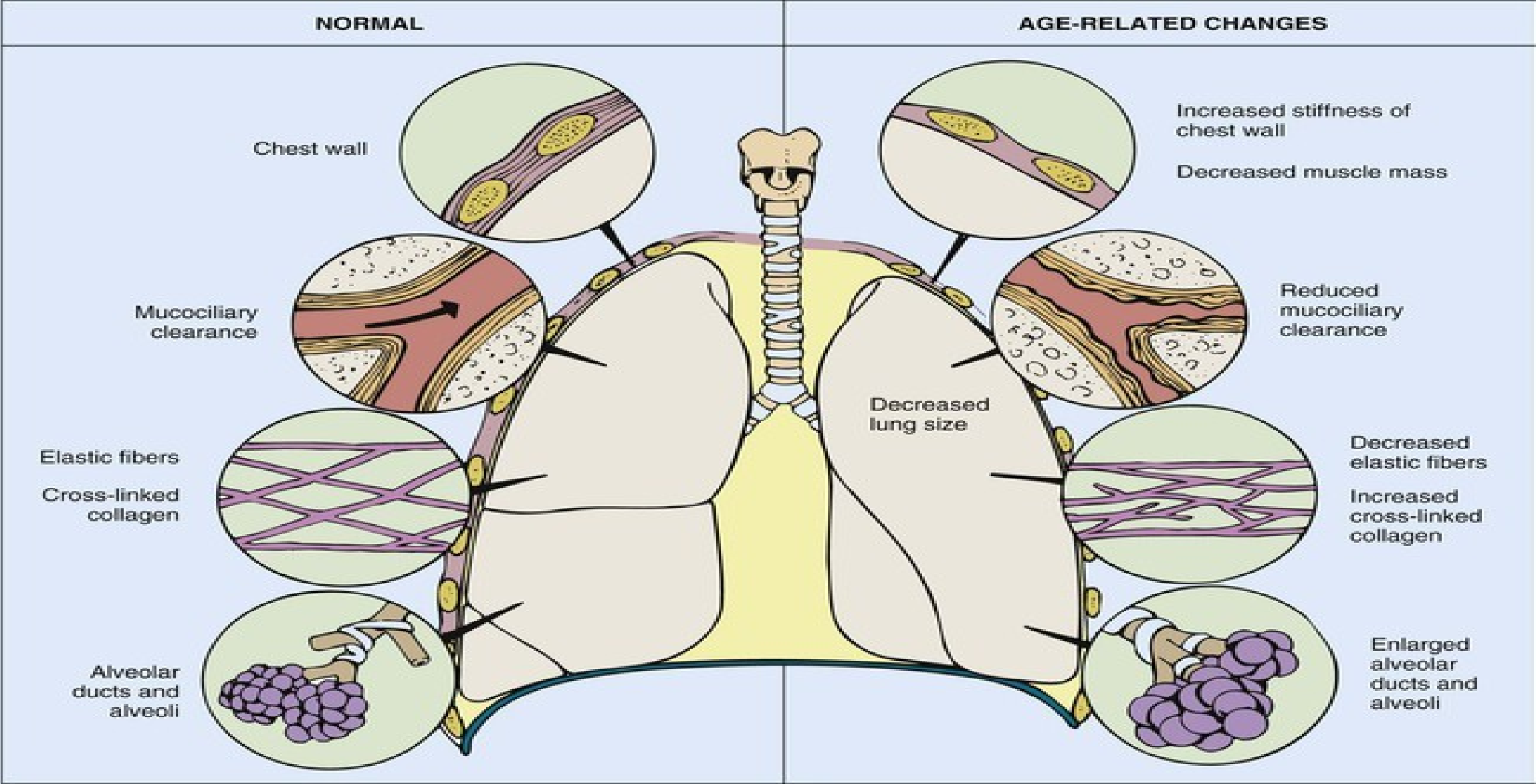


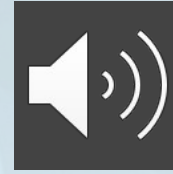
Age-Related Changes in the Respiratory System

- **Lungs decrease in size, elasticity**
- **Calcification of laryngeal and tracheal cartilage**
- **Number of cilia and their activity decrease**
- **Decreased production of mucus**
- **Cough reflex is blunted and gag reflex is less efficient**
- **Structure of alveoli changes: less surface area**
- **Thinning of vocal cords: higher pitch in voice**
- **Calcification of thoracic bones**
- **Respiratory muscles weaken**



Age-Related Changes in the Respiratory System

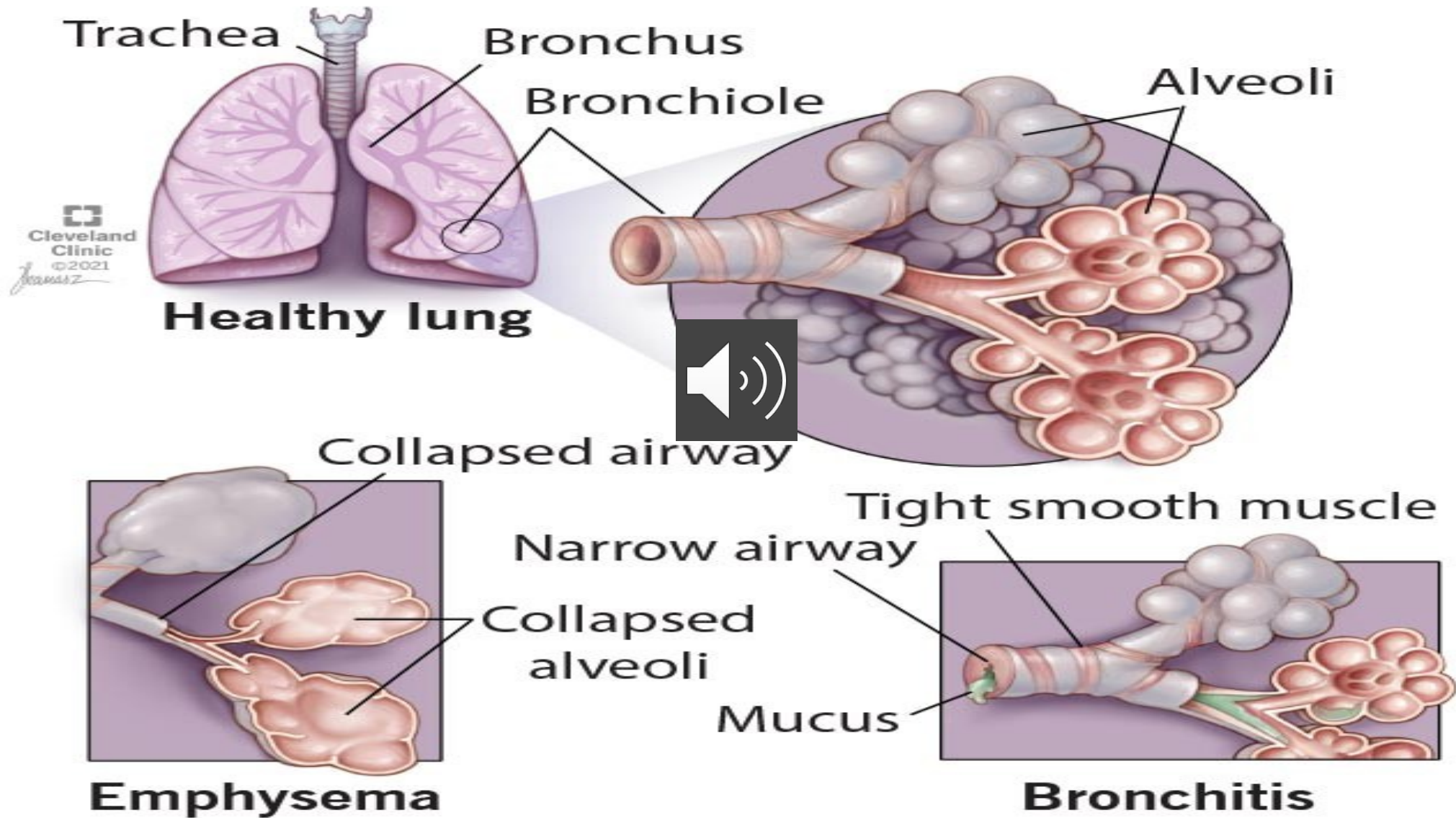




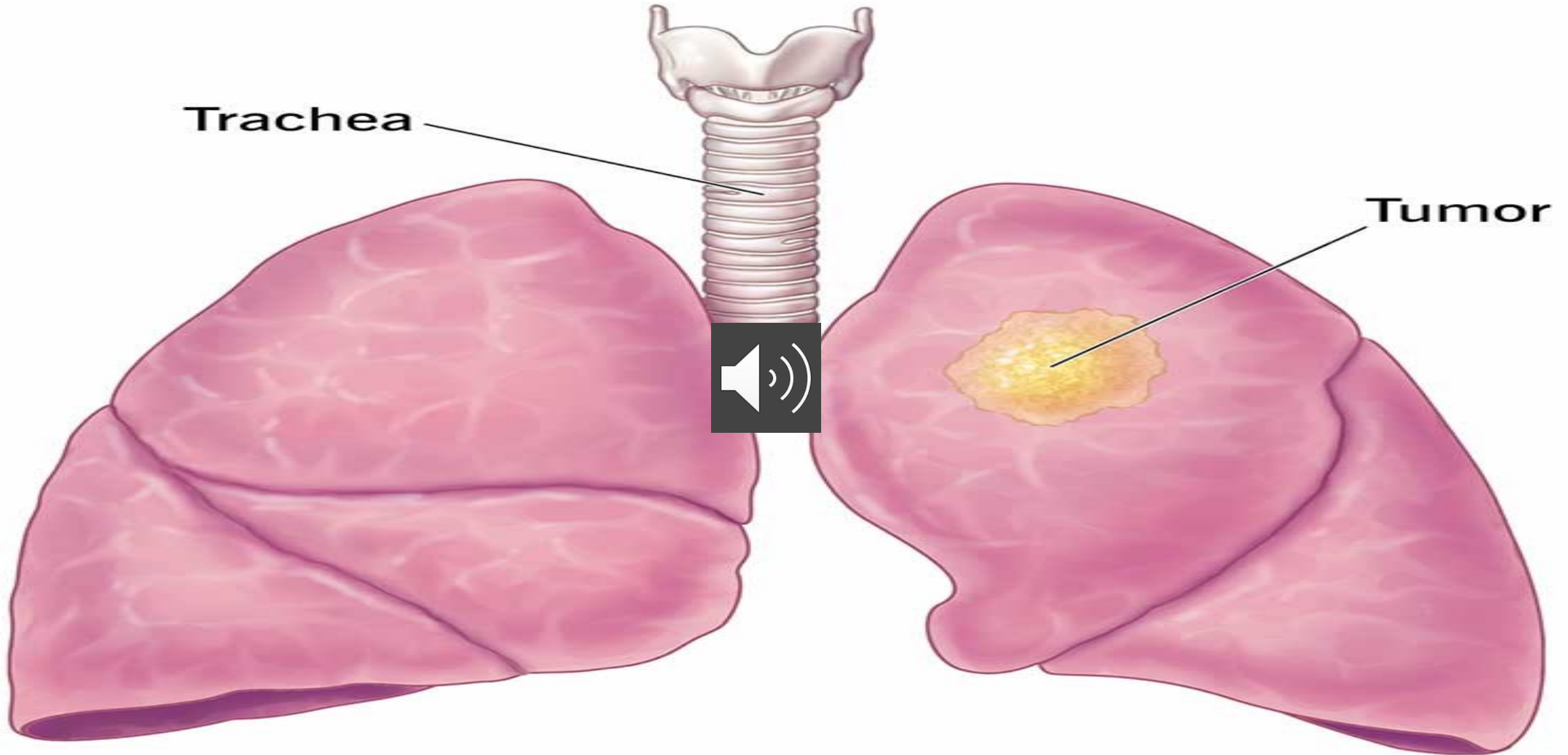
Age-Related Disorders of the Respiratory System

- **Chronic obstructive pulmonary disease (COPD):** chronic disease of the lungs which blocks the flow of air in and out of the lungs.
 - **Chronic bronchitis:** inflammation of the bronchi and coughing that is often due to smoking.
 - **Emphysema:** damage to air sacs or alveoli leading to shortness of breath and damage to the ability of the alveoli to exchange carbon dioxide and oxygen often due to smoking.
- **Pneumonia:** infection in alveoli or air sacs leading to fluid and inflammation in these.
- **Lung cancer:** uncontrolled, malignant growth of cells in the lungs, malignant tumor(s)

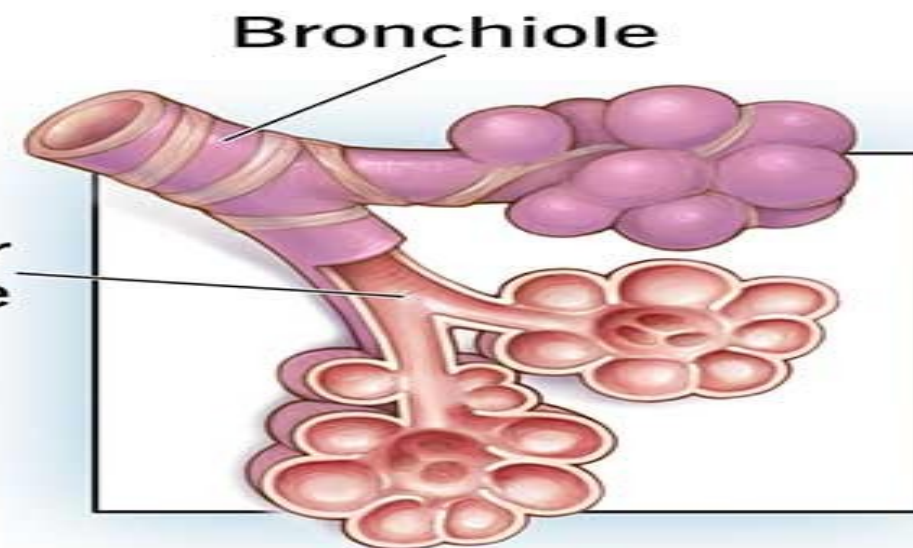
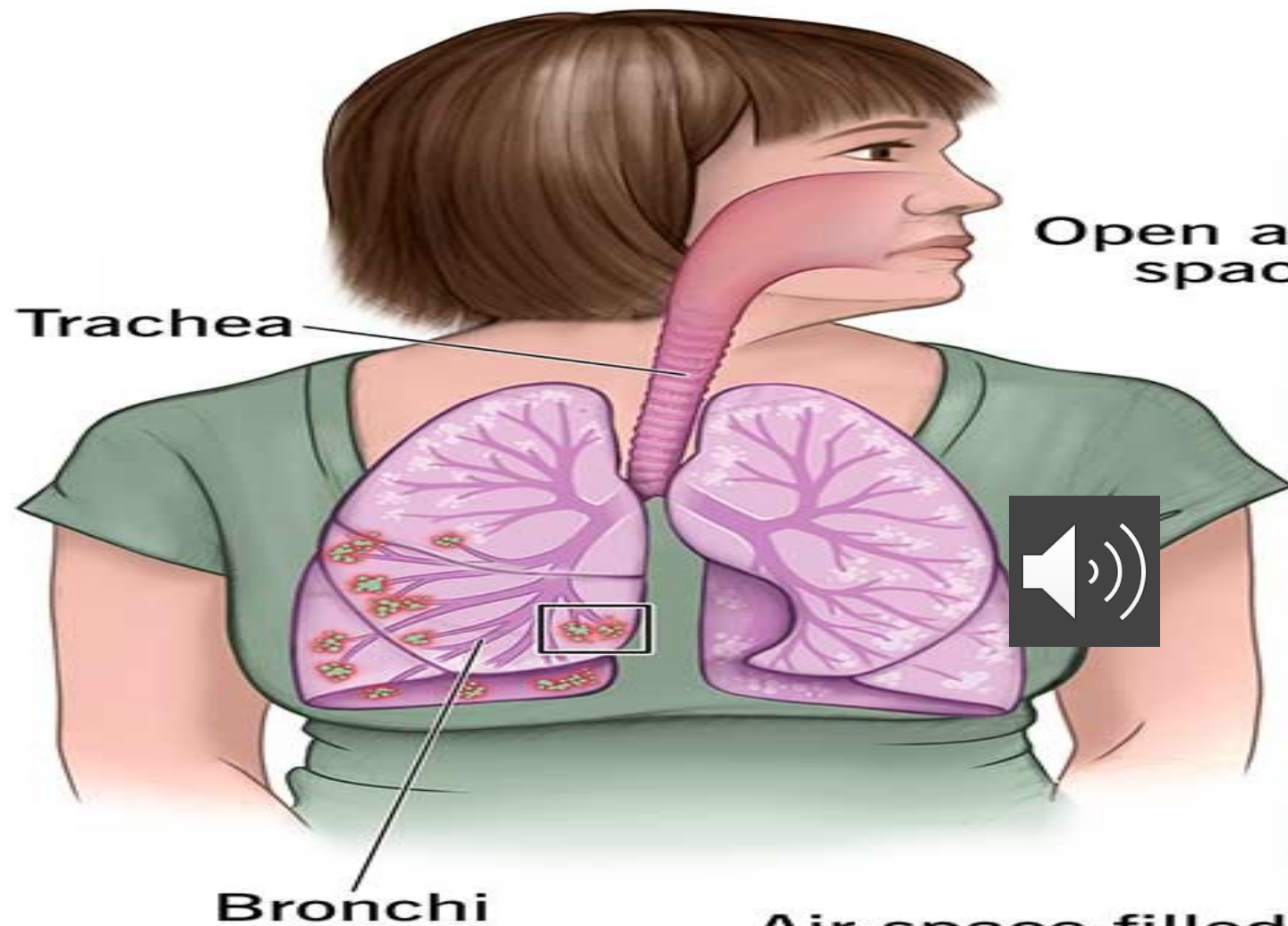
Chronic Obstructive Pulmonary Disease (COPD)



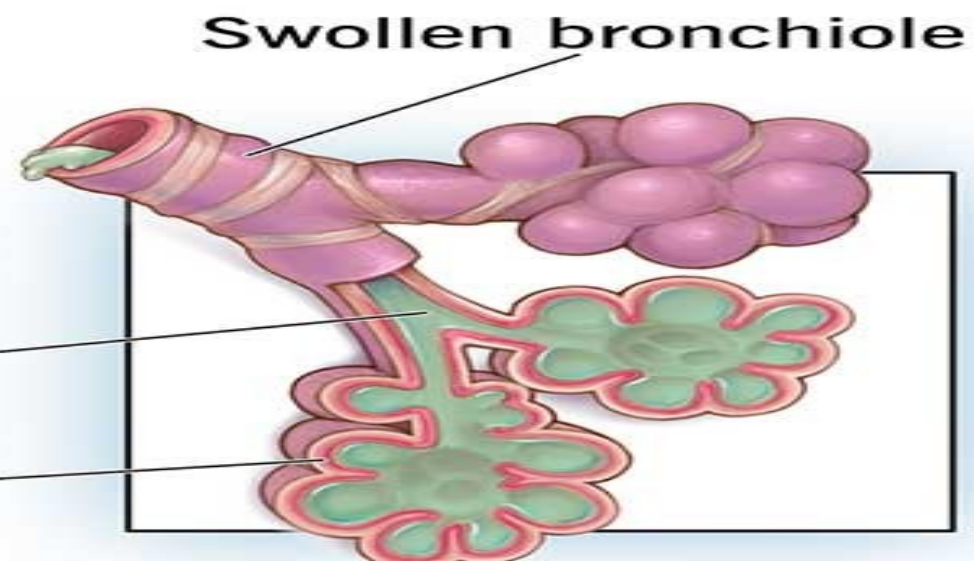
Lung Cancer



Pneumonia

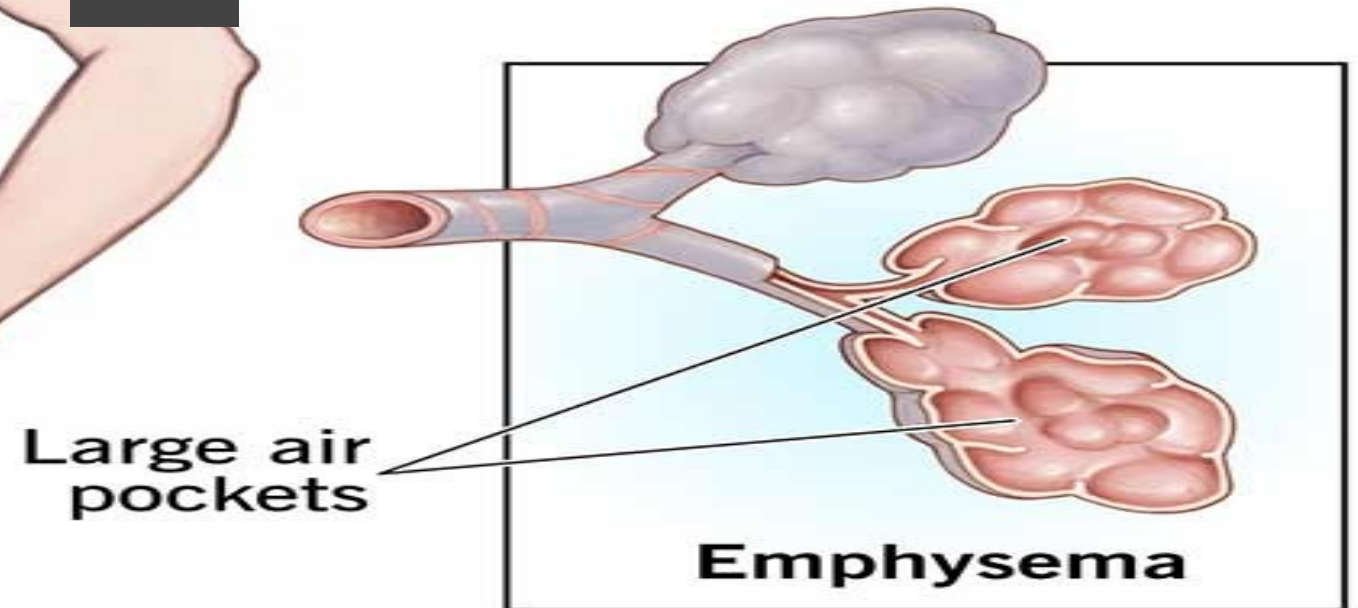
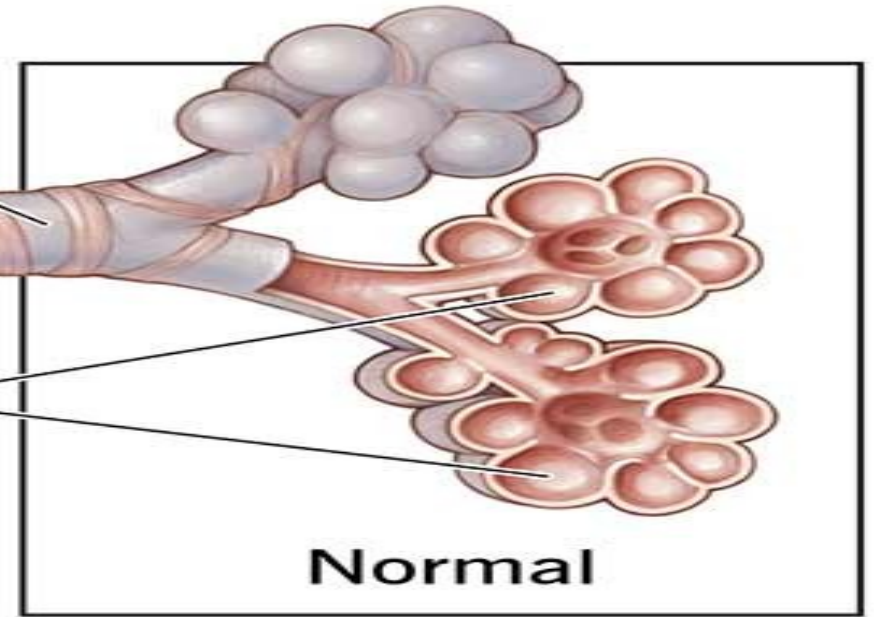
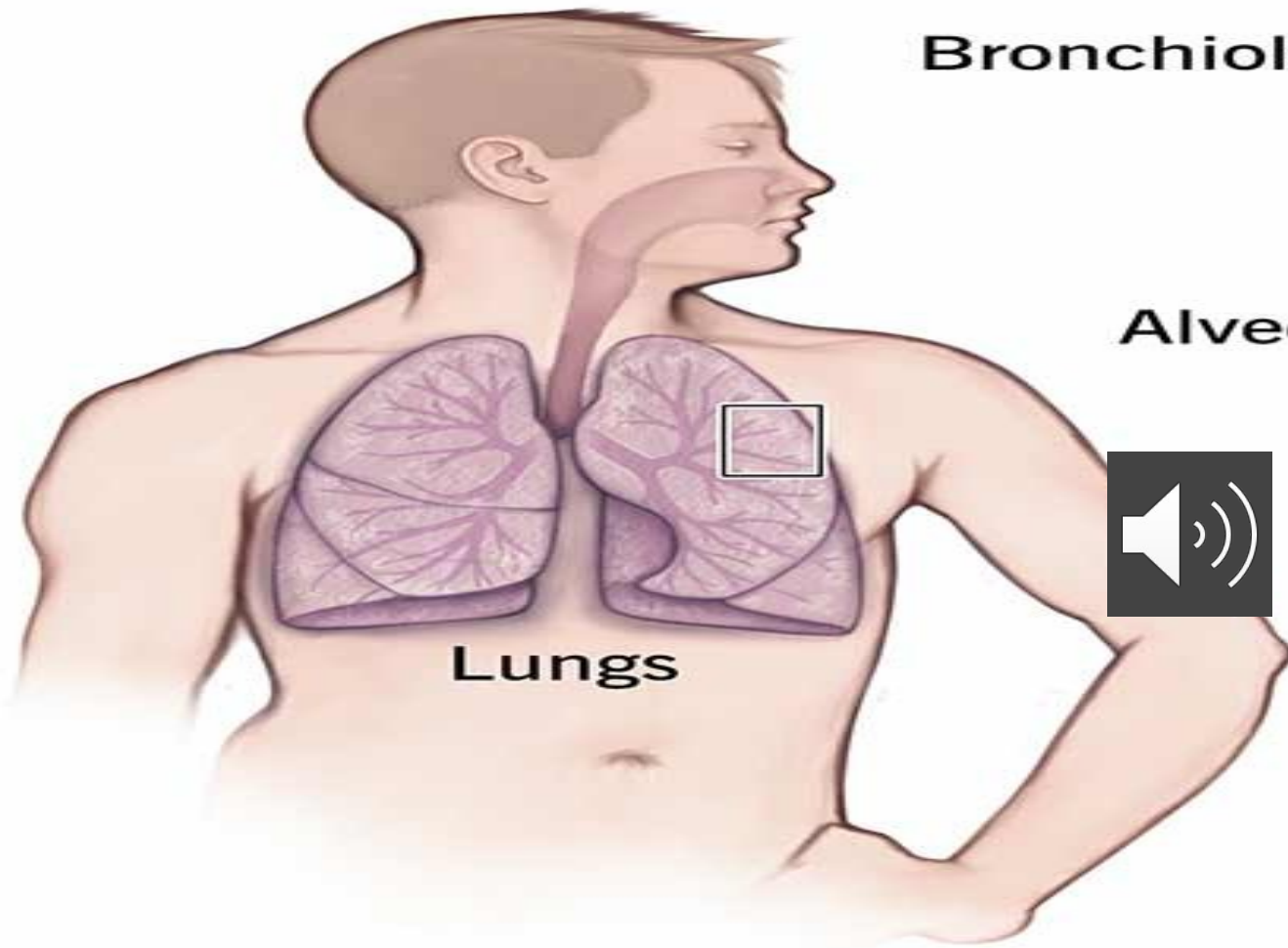


Healthy Alveoli



Pneumonia

Emphysema



Prevention of Respiratory Disease



- **Drink 1.5 to 2 quarts of fluid each day**
- **Eat a well-balanced diet**
- **Have annual physical examinations**
- **Stop smoking**
- **Receive annual pneumonia and influenza vaccines**
- **Exercise regularly**