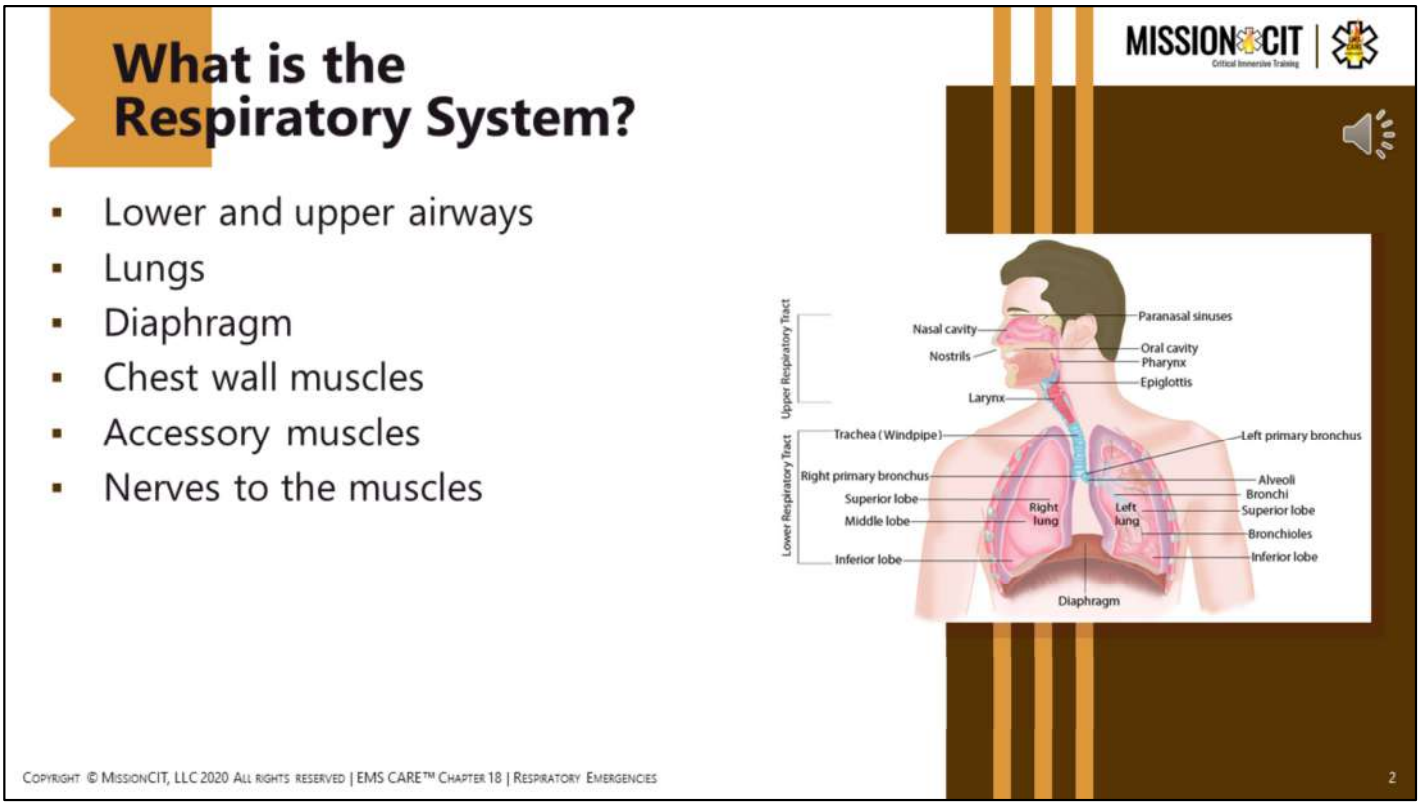


Hello and welcome to the first lesson where we talk about the anatomy of the respiratory system.

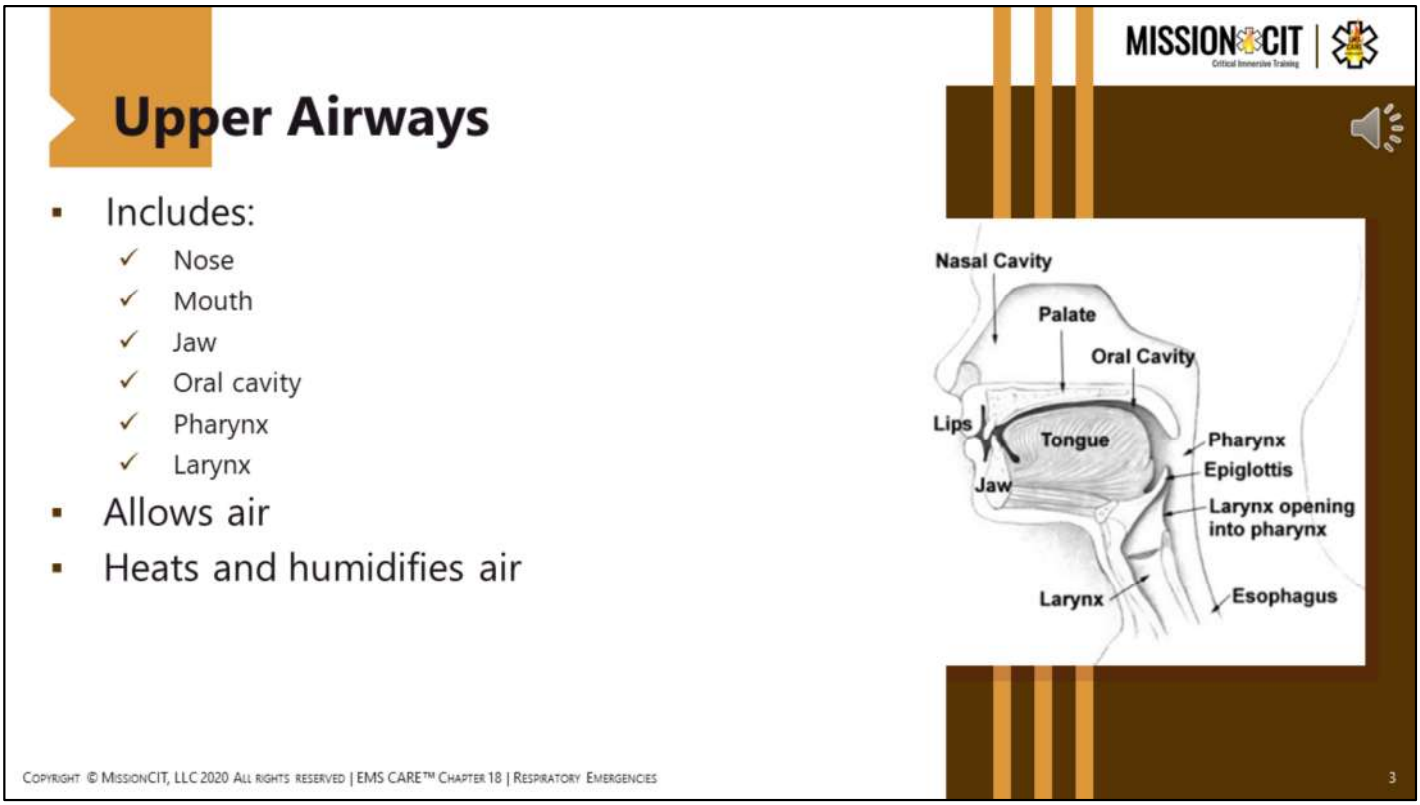
So, let's get started!



The respiratory system consists of all the structures and organs that are involved in breathing. The purpose of this system is to move oxygen throughout the body and remove waste gases like carbon dioxide from the system.

The respiratory system includes,

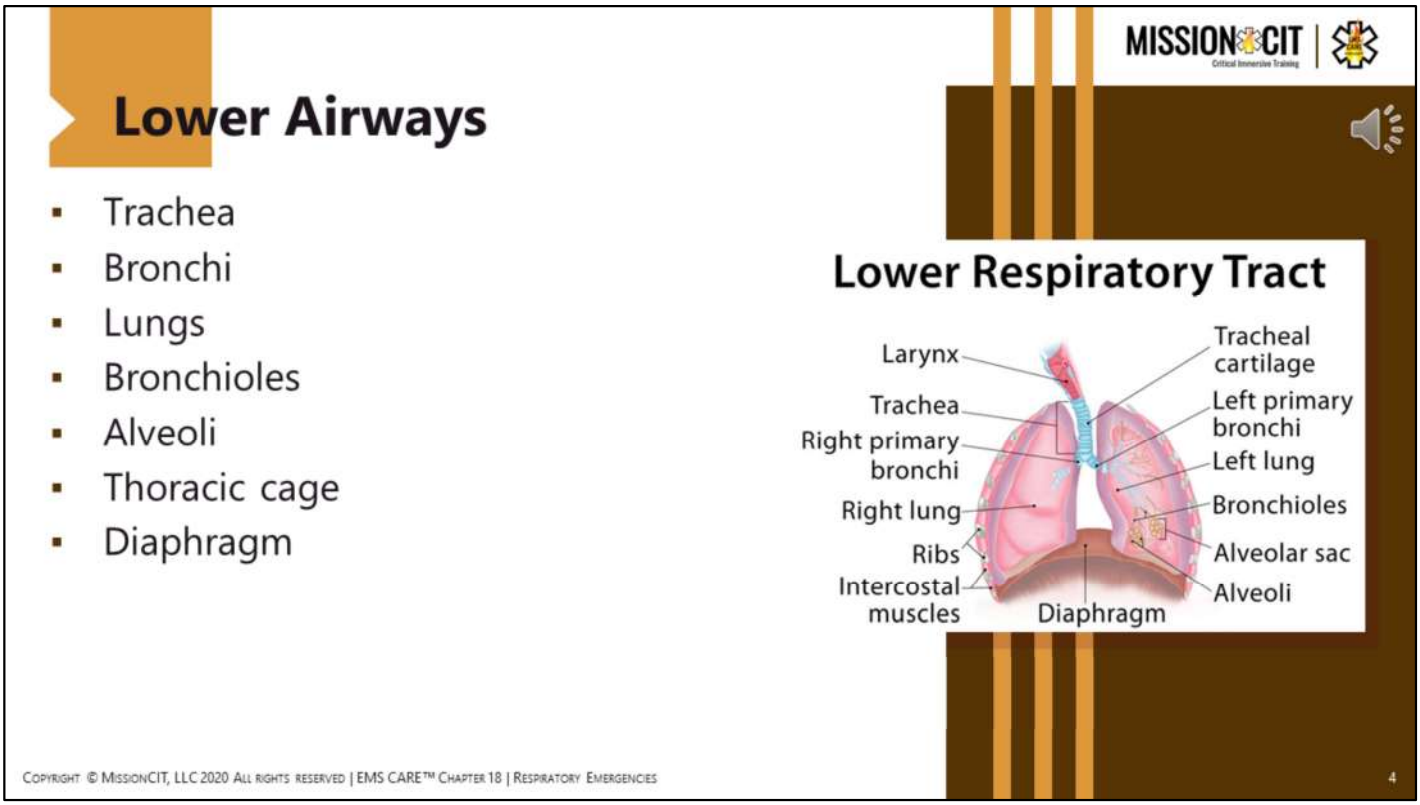
- Lower and upper airways
- Lungs
- Diaphragm
- Chest wall muscles
- Accessory muscles, and
- Nerves to the muscles



The respiratory system is divided into upper and lower airways. The upper airways consist of structures located above the vocal cords, and includes,

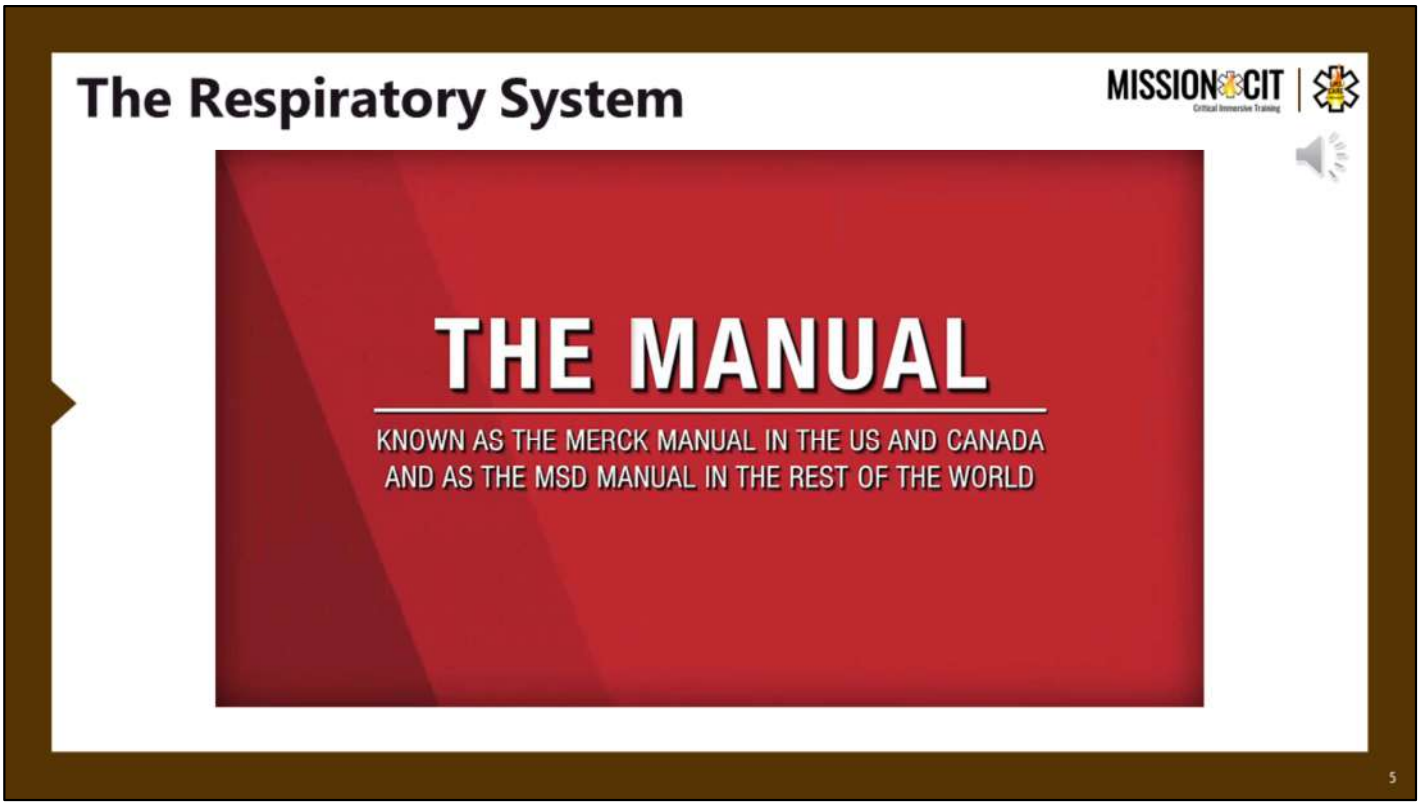
- Nose
- Mouth
- Jaw
- Oral cavity
- Pharynx, and
- Larynx

The role of the upper airway is to allow air to be breathed in and out of the body. It also heats, humidifies, and filters the air, and has a role in cough, swallowing, and speech.



The lower respiratory tract is the organs that are located below the vocal cords and include,

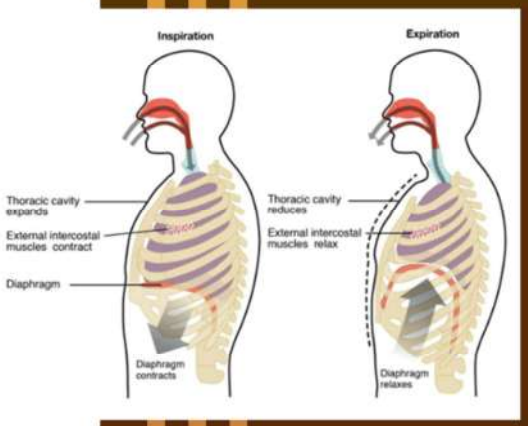
- Trachea, a tube that extends from the bottom of the larynx and eventually ends in the bronchioles.
- Bronchi are tubes of the primary branch that extend from the end of the trachea.
- Lungs are the main organ that is responsible for the exchange of gas.
- Bronchioles are the smaller branches that emanate from the primary bronchus.
- Alveoli are the microscopic sacs that are served by the bronchioles.
- The thoracic cage is the bone structure that protects the lungs.
- The diaphragm is a muscle that facilitates the lungs to do the gas exchange.



Here is a video from Merck Manuals explaining the respiratory system.

Physiology of Respiration

- Inspiration
- Expiration
- Process of respiration
- Brain regulates CO2



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There are two processes in respiration and they are inspiration and expiration.

As you may have guessed, inspiration is the process of taking in air. During this process, air travels through the trachea into the lungs. This is an active process as it uses muscle contraction to increase the size of the chest cavity. During this process, the intercostal muscles and the diaphragm contract. As the diaphragm lowers, the ribs moved outward and upward, and the air is pulled into the lungs.

The expiration process is a passive one, where the rib muscles and diaphragm relax and the size of the chest cavity decreases. All these cause the air to flow out of the lungs.

During respiration, oxygen is provided to the blood, and carbon dioxide is removed. In the alveoli, the oxygen passes into capillaries during inspiration and carbon dioxide returns to the lungs. The same is sent out during expiration.

The brain senses the level of carbon dioxide and regulates the breathing rate and depth accordingly.

This brings us to the end of this lesson, and in the next one, Justin will talk about dyspnea.