

# Respiratory Health

by Sophia



## WHAT'S COVERED

In this lesson, you will learn to understand common disorders associated with the respiratory system. Specifically, this lesson will cover:

## 1. Disorders Caused by Irritants

Disorders such as bronchitis, emphysema, and asthma are all disorders caused by particles, gases, or some sort of airborne irritant that will cause damage to a part of the respiratory system and often leads to difficulty breathing.

**Bronchitis** occurs when pollution or a virus increases mucus secretions causing mucus to accumulate in the airways. There's usually a lot of coughing and difficulty breathing associated with bronchitis.

**Emphysema** is another type of disorder caused by irritants. The lungs will become inflamed due to these irritants, which leads to the lungs becoming inelastic. If the lungs are inelastic, they can't exchange gases as efficiently as they usually would.

**Asthma** is the last type of disorder we're going to discuss that is caused by an irritant. Bronchioles, the structures that connect the trachea to the lungs, will suddenly narrow, making it very difficult to breathe. Asthma can be triggered by various factors such as an infection, heavy exercise, stress, et cetera.



### TERMS TO KNOW

#### **Bronchitis**

Inflammation of the mucous membranes within the bronchial tubes; bronchitis can be caused by a virus or air pollutants.

#### **Emphysema**

Frequent inflammation of the lungs causing airways to become stiffened and alveoli breakdown; this leads to insufficient gas exchange.

#### **Asthma**

A condition in which bronchioles narrow suddenly, causing breathing troubles; asthma can be triggered by allergens, stress, exercise, or respiratory infections.

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## 2. Disorders Caused by Viruses and Bacteria

Some disorders of the respiratory system are caused by viruses or bacteria. Two such examples are pneumonia and tuberculosis (also known as TB).

**Pneumonia** occurs when a virus, bacteria, or fungi are inhaled and infects the lungs. It causes fluid buildup within the lungs. That fluid occupies space that air would usually fill, making it difficult to breathe.

**Tuberculosis**, or TB, is a lung infection caused by a bacterium that causes patches of lung tissue to be destroyed. If left untreated, it can be fatal because gases are not being exchanged properly, which is essential for the maintenance of cells and tissue. A vaccine against tuberculosis does exist, so in the United States, it's generally not a common or fatal issue.



#### TERMS TO KNOW

##### **Pneumonia**

An infection of the lungs in which fluid buildup makes it difficult to breathe.

##### **Tuberculosis**

A lung infection caused by a type of bacteria which destroys lung tissue.

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## 3. Sleep Apnea

**Sleep apnea** is another disorder of the respiratory system that occurs when sensors in the brain that detect oxygen and carbon dioxide levels don't properly function and breathing patterns are disrupted. When a person is sleeping, sometimes their breathing will temporarily stop. This can be dangerous and is most prevalent in elderly or obese people.



#### TERM TO KNOW

##### **Sleep Apnea**

A condition in which a person's breathing suddenly stops for a period of time and then resumes during sleep.

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## 4. Hazards of Smoking

One factor that plays a huge role in degenerating the health of the respiratory system is smoking, which can cause various disorders of the respiratory system. Smoking can prevent **cilia** from beating properly. These cilia are tiny hair-like projections on the surface of lung cells; you can think of each cilium as handing off microbes and debris to the next cilium, from the lungs up to the airway and out of the body. If they can't beat, cilia can't move crud out of your lungs, so all of these unhealthy particles you breathe in (including irritants from smoke inhalation) settle in your lungs and cause damage.

Smoking can cause mucous secretions and kill **phagocytes** in the lining of the respiratory system. Phagocytes are important in maintaining respiratory health by cleaning debris from inhaled air.

Smoking can also increase the risk of lung and breast cancer and can also lead to high blood pressure and high cholesterol. Smoking not only has an effect on the respiratory system, but it also has an effect on the body as a whole.



## TERMS TO KNOW

### Cilia

Hair-like projections found on the surface of various types of cells that play a role in locomotion.

### Phagocytes

Cells that act in innate immunity to engulf pathogens (phagocytosis) in an attempt to prevent infection.



## SUMMARY

Some disorders of the respiratory system are **disorders caused by irritants** being breathed in, such as bronchitis, emphysema, or asthma. Others can be **disorders caused by breathing in viruses or bacteria**. This is the case with pneumonia and tuberculosis. **Sleep apnea** is a disorder caused when sensors in the brain that detect oxygen and carbon dioxide levels don't function properly. While sleeping, breathing will stop, which can be dangerous. **Smoking is a hazard** to the health of the respiratory system. It can cause many problems, not just in the respiratory system but in the whole body, such as lung cancer and breast cancer.

Keep up the learning and have a great day!

Source: THIS WORK IS ADAPTED FROM SOPHIA AUTHOR AMANDA SODERLIND



## TERMS TO KNOW

### Asthma

A condition in which bronchioles narrow suddenly, causing breathing troubles. Asthma can be triggered by allergens, stress, exercise, or respiratory infections.

### Bronchitis

Inflammation of the mucous membranes within the bronchial tubes. Bronchitis can be caused by a virus or air pollutants.

### Cilia

Hair-like projections found on the surface of various types of cells that play a role in locomotion.

### Emphysema

Frequent inflammation of the lungs causes airways to become stiffened, and alveoli to break down. This leads to insufficient gas exchange.

### Phagocytes

Cells that act in innate immunity to engulf pathogens (phagocytosis) in an attempt to prevent infection.

### Pneumonia

An infection of the lungs in which fluid build-up makes it difficult to breathe.

### Sleep Apnea

A condition in which a person's breathing suddenly stops for a period of time and then resumes during

sleep.

**Tuberculosis**

A lung infection caused by a type of bacteria which destroys lung tissue.