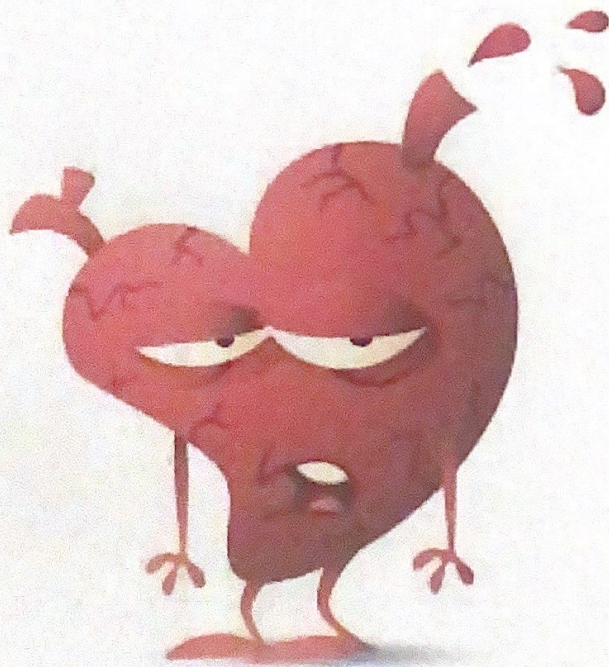


# **Congestive Heart Failure and the Respiratory System**

Written by Joshua Navarro



This illustrated book will discuss what Congestive Heart Failure is and how it affects the respiratory system.

**The course objective this project relates to is:**

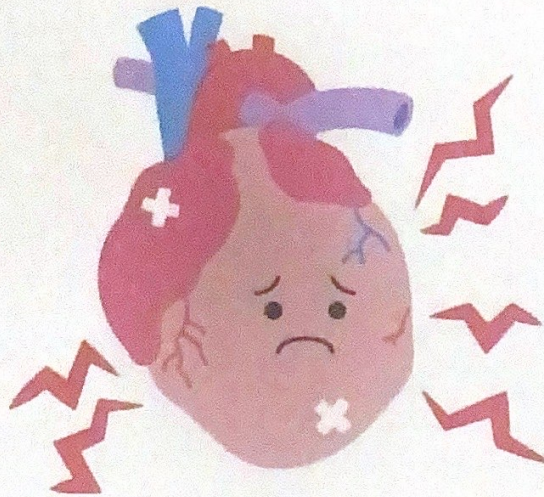
Analyze the interaction of the cardio and respiratory System



**CHF**

## What is Congestive Heart Failure (CHF)?

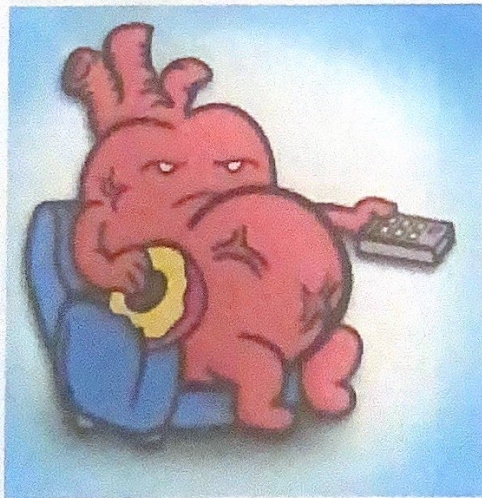
Heart failure is characterized by the heart not having the capacity to pump blood to meet the metabolic needs of the body. This can cause blood and fluid to back up into the lungs, extremities, and other organs. This congestion of fluid can cause numerous problems within the body. Almost 6 million Americans have CHF.



## What Causes CHF?

The most common cause of CHF is Coronary Artery Disease. Some other risk factors include:

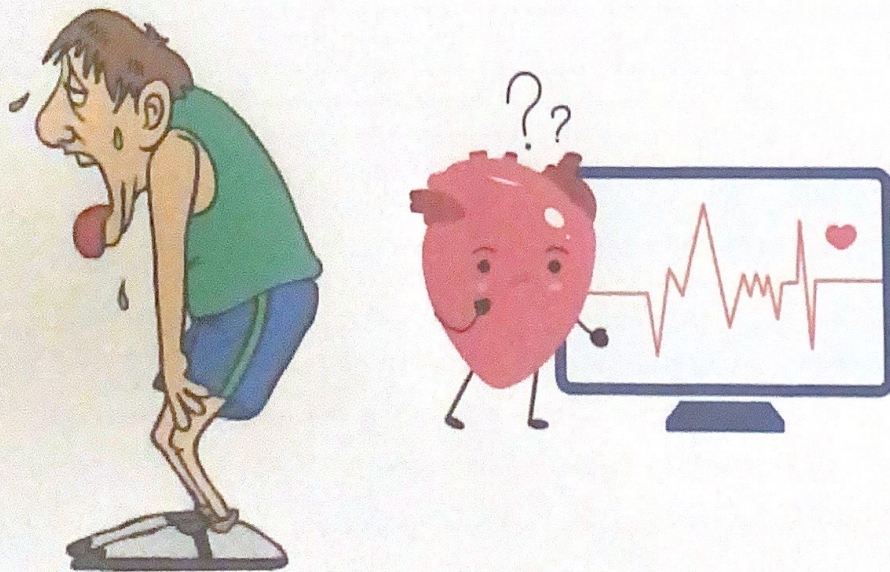
- High cholesterol
- High blood pressure
- Diabetes
- Smoking
- Stress
- Obesity



## Symptoms of CHF

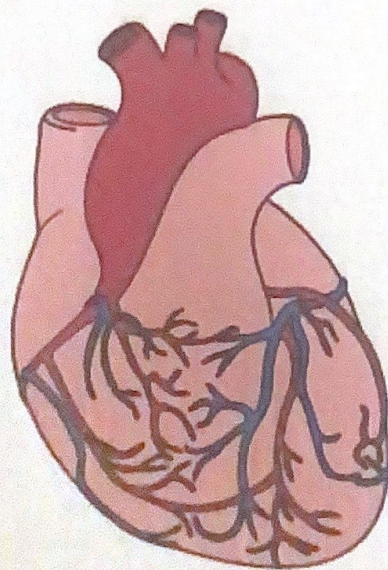
Symptoms include:

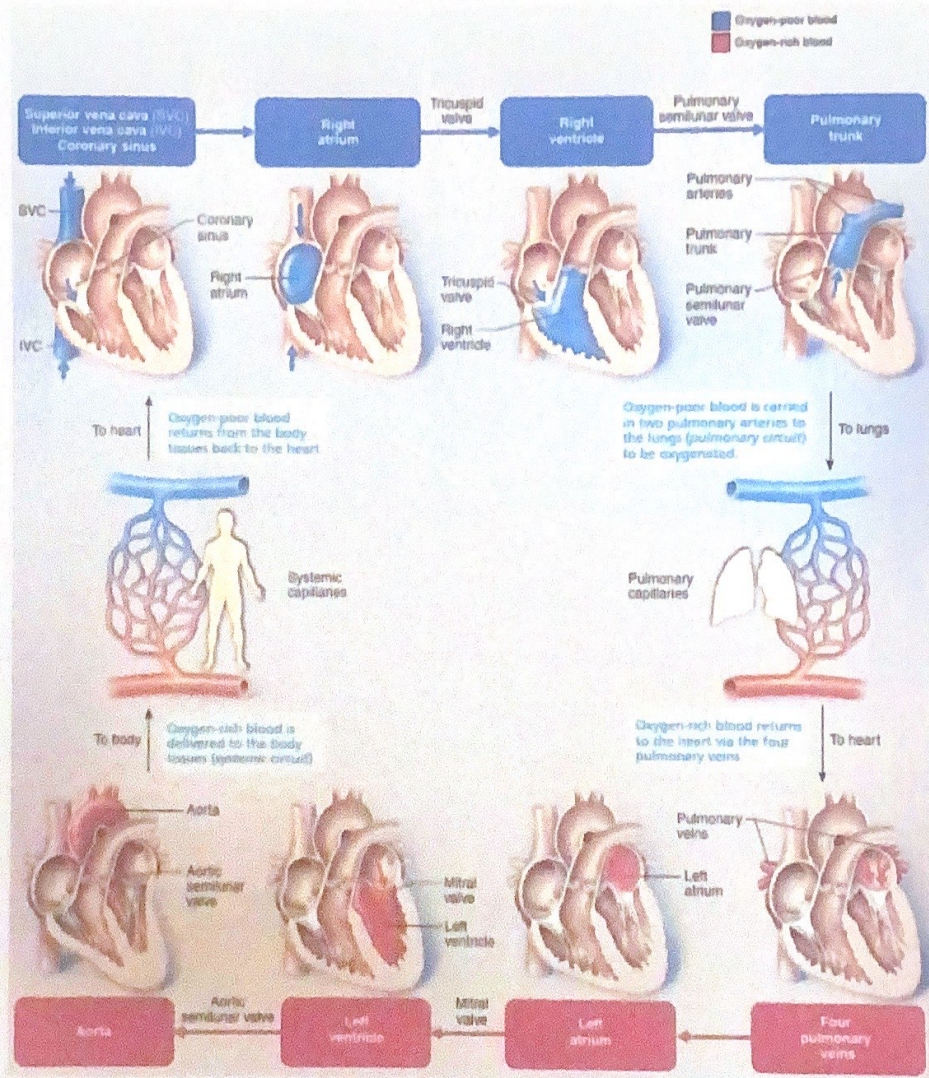
- Shortness of breath
- Fatigue
- Arrhythmias
- Edema in legs and lungs



## Review of Heart Anatomy

To understand how CHF affects the respiratory system it is important to understand how the heart pumps blood throughout the body. The next page will show the blood flow through the heart.





Blood flow through the heart

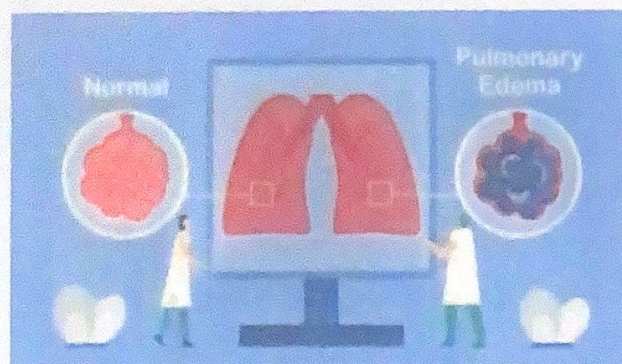
## **How Does it Affect the Respiratory System?**

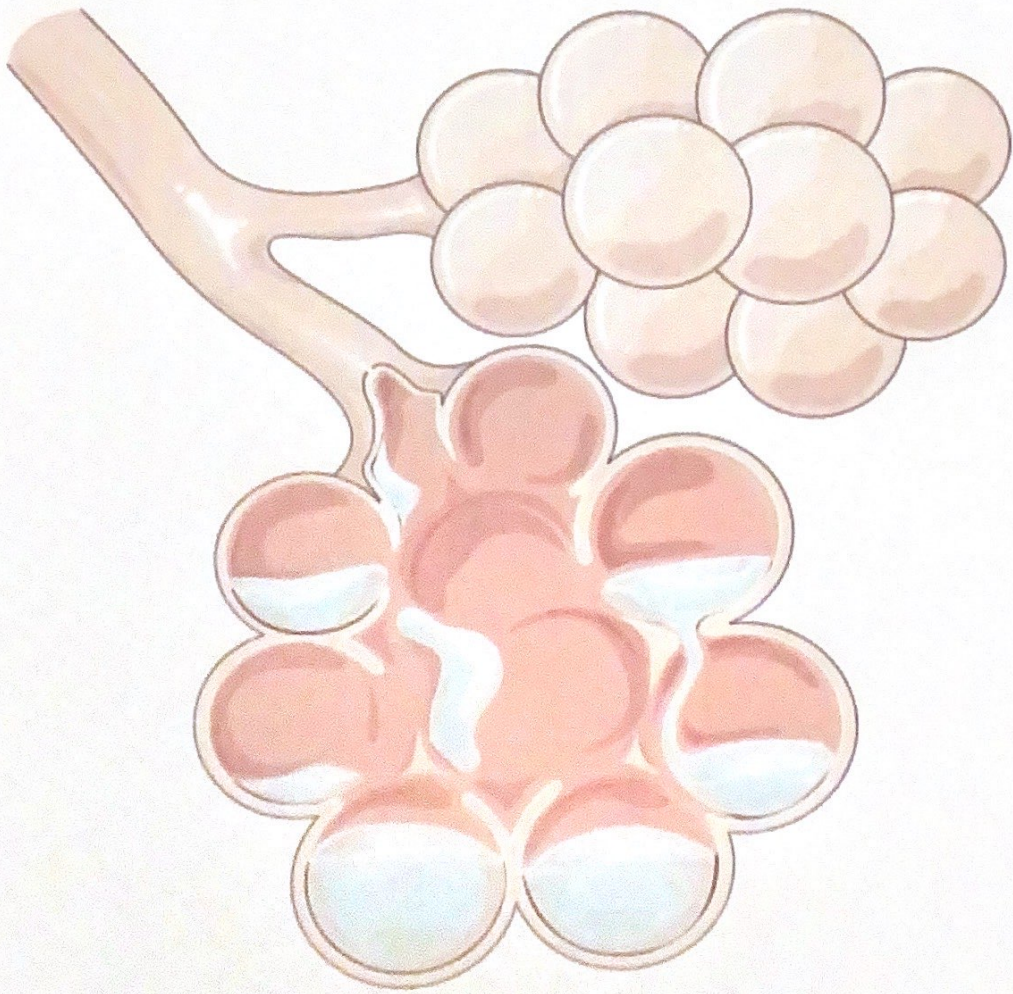
When the heart fails to pump the demands of the body, the hydrostatic pressure forces fluid from the capillaries into the interstitial spaces. If the heart failure originates on the left side of the heart, fluid will back up into the lungs called pulmonary edema. When the heart failure originates on the right side of the heart, fluid will back up into the extremities. If the alveoli fill with fluid, it decreases with ability of oxygen and carbon dioxide to diffuse between the capillaries and the alveoli.



## How Does it Affect the Respiratory System?

As a result of a decrease in the ability of oxygen and carbon dioxide to diffuse between the capillaries and the alveoli, the lungs have a hard time with ventilation. When air reaches the alveoli, the gas exchange is impaired due to an increased distance between the alveoli and the capillaries caused by the fluid. The fluid reduces the surface area needed for gas exchange.

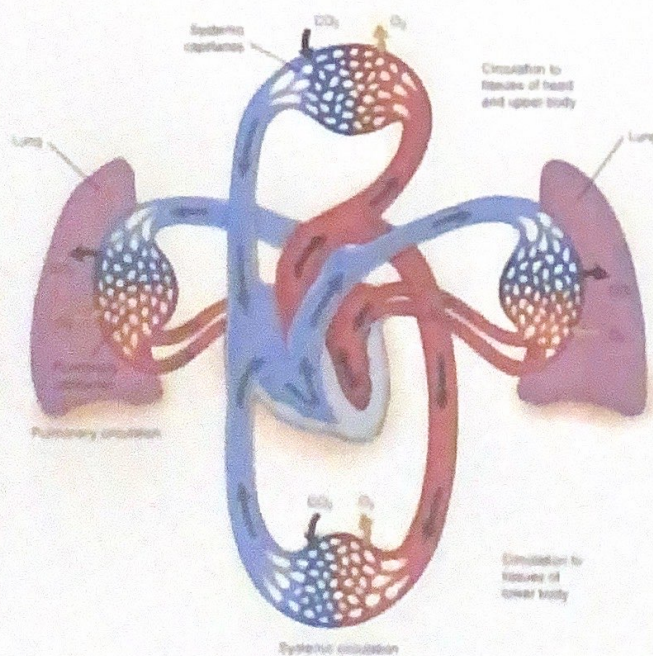




Fluid in the alveoli

## How Does it Affect the Respiratory System?

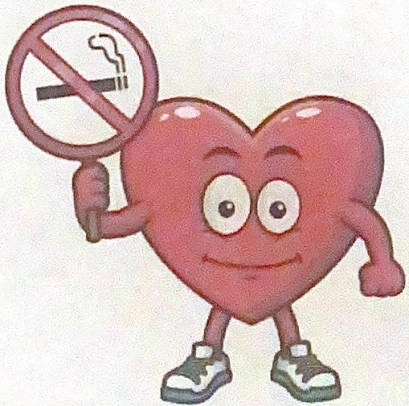
The circulatory and respiratory system work together to circulate oxygen throughout the body. If one system is impaired, the other will be affected and the body will struggle getting the oxygen needed within the cells.



## Prevention

Now that we understand CHF and its relationship to the respiratory system, it is important to live a healthy lifestyle to minimize the chances of developing CHF in the future. This includes:

- Don't Smoke: Smoking can cause arterial and alveolar damage
- Eat Healthy: Eat for good heart health.
- Stay Physically Active: Keep your heart in good shape and control your weight.



## References:

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