

COPD: Blue Bloaters and Pink Puffers (Chronic Bronchitis vs Emphysema)

Chronic Obstructive Pulmonary Disease (COPD) is a progressive lung disease that affects millions of Americans. It is currently a major cause of disability, and it's the third leading cause of death in the United States. There are many people that have COPD and do not even know it (<https://www.nhlbi.nih.gov/health/health-topics/topics/copd>).

Emphysema and Chronic Bronchitis are two of the most common conditions that contribute to COPD. The difference is in how the two conditions affect the body, contributing to the difference in symptoms. While both emphysema and chronic bronchitis are both ailments of the pulmonary system, they affect different parts of the lungs, causing different symptoms.

Emphysema results when the alveoli are destroyed, usually because of cigarette smoking or some other chemical that is inhaled. The alveoli are small sacs located at the end of the respiratory tree and are where the exchange of oxygen and carbon monoxide take place. Once the alveoli are destroyed they cannot be repaired. They lose their elasticity which causes air to become trapped inside them- this explains why exhaling is difficult for a person with emphysema and the damage progressively worsened over time.

Chronic bronchitis is an inflammation of the lining of the bronchial tubes. Bronchial tubes carry air into and out of the lungs. Mucus forms when the airways are irritated and inflamed, this mucus makes it harder to breath. The body does not take in enough oxygen, resulting in cyanosis. This causes an increased strain on the heart, eventually leading to right sided heart failure and edema.

- In the chronic bronchitis group, classic symptoms include the following:
 - Productive cough, with progression over time to intermittent dyspnea
 - Frequent and recurrent pulmonary infections
 - Progressive cardiac/respiratory failure over time, with edema and weight gain
- In the emphysema group, the history is somewhat different and may include the following set of classic symptoms:
 - A long history of progressive dyspnea with late onset of nonproductive cough
 - Occasional mucopurulent relapses
 - Eventual cachexia and respiratory failure

Depending on the type of chronic obstructive pulmonary disease (COPD), physical examination may vary.

- Chronic bronchitis (blue bloaters)
 - Patients may be obese.
 - Frequent cough and expectoration are typical.
 - Use of accessory muscles of respiration is common.
 - Coarse rhonchi and wheezing may be heard on auscultation.
 - Patients may have signs of right heart failure (cor pulmonale), such as edema and cyanosis.
- Emphysema (pink puffers)
 - Patients may be very thin with a barrel chest.
 - They typically have little or no cough or expectoration.
 - Breathing may be assisted by pursed lips and use of accessory respiratory muscles; they may adopt the tripod sitting position.
 - The chest may be hyper resonant, and wheezing may be heard; heart sounds are very distant.

The mainstays of therapy for acute exacerbations of chronic obstructive pulmonary disease (COPD) are oxygen, bronchodilators, and definitive airway management.

Emphysema (Pink Puffers)	Chronic Bronchitis (Blue Bloaters)
Thin Appearance	Airway Flow Problem
Increased CO ₂ retention	Color is Dusky to Cyanotic
Minimal Cyanosis	Recurrent Productive Cough
Purse Lip Breathing	Hypoxia
Dyspnea	Hypercapnia
Hyper-resonance on Chest Percussion	Respiratory Acidosis
Orthopneic	High Hemoglobin
Barrel Chest	Increased Respiratory Rate
Exertional Dyspnea	Dyspnea on Exertion
Prolonged Expiratory Time	Digital clubbing
Speaks in short jerky sentences	Cardiac enlargement
Anxious	Bilateral lower extremity edema
Use of accessory Muscles to Breath	