



UNDERSTANDING CO-MORBIDITIES

HOW THEY CAN LEAD TO
AND WORSEN HEART FAILURE

What is a co-morbidity?

- Two or more chronic conditions at the same time
- They can help develop heart failure because they make the heart work harder
- They can also worsen heart failure because they weaken the heart over time

What is a chronic condition?

- A condition that continues for 1 year or longer, needs medical attention, and/or limits daily living

Why co-morbidities are a problem.

- The more co-morbidities you have, the harder it is to maintain your health

Co-morbidities that make your heart work harder, and over time can lead to heart failure, or worsen it:

- Obstructive Sleep Apnea (OSA)
- Coronary Artery Disease (CAD)
- High Blood Pressure
- Renal Disease (CKD)
- Diabetes Mellitus (DM)
- COPD
- Anemia/Iron Deficiency
- Obesity
- Depression
- Infection

Co-morbidities that lead to low oxygen in the blood (hypoxemia) and cause your heart to work harder:

- **COPD** – Tiny air sacs (alveoli) may not get enough oxygen leading to hypoxemia
- **Obstructive Sleep Apnea (OSA)** – Episodes of not breathing, or shallow breathing leads to hypoxemia
- **Anemia** – The body does not have enough red blood cells to carry oxygen leading to hypoxemia
- **Iron Deficiency** – Prevents bone marrow from making enough hemoglobin and leads to anemia
- **Renal Disease** – causes the body to make less red blood cells which leads to anemia

Co-morbidities that limit oxygen to the heart muscle and can damage or weaken the muscle and cause your heart to work harder:

- **Coronary Artery Disease (CAD)** – Narrow arteries can block the flow of blood to the heart muscle
- **High Cholesterol** – Clogs vessels and contributes to Coronary Artery Disease (CAD)
- **Diabetes Mellitus (DM)** – High sugar in the blood causes inflammation to vessels and cause CAD

Co-morbidities that raise your heart rate or blood pressure and cause your heart to work harder:

- **Depression** – Feelings of fear and anxiety are common
- **Renal Disease** – Kidneys cannot help regulate blood pressure to keep it in a healthy range
- **COPD** – Raises blood pressure in lungs (Pulmonary Hypertension) leading to Right Side Heart Failure

Co-morbidities that change the structure/size of heart muscle (ventricular hypertrophy) and raises the risk of heart attack and heart failure:

- **Obesity** – Leads to extra blood which is heavier to pump causing your heart to work harder
- **High Blood Pressure** – Forces the heart to work harder to pump blood to body

Modifiable risk factors that affect heart health:

- **Smoking** – studies have shown smoking is related to CAD severity
- **Excessive Salt Intake** – causes fluid overload which worsens heart failure
- **Anxiety/Stress** – Causes the “fight or flight” reaction and increases cortisol (stress hormone)