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Oxygen — Yes, it can be toxic !!

2018 British Medical Journal review of the data and clinical practice guideline

- Give O₂ if SpO₂ <90%
- **Goal SpO₂ no higher than 94%**
- Goal SpO₂ is then 90-94%. Higher O₂ saturations can lead to WORSE outcomes in many cases.

Hyperoxia can cause:

- **systemic vasoconstriction** (hypertension) and increase cardiac output (1).
 - o But...it dilates pulmonary vessels. Opposing effects.
- **May actually INCREASE infarct size in acute MI.** Hyperoxia causes coronary vasoconstriction. (The O in MONA is dead!) (2,3)
 - o No benefit to supplemental oxygen in AMI....if you are not hypoxic to start with.
- **Titrated oxygen treatment in COPD exacerbations had better outcomes than high flow oxygen.** (titrated oxygen = Nasal canula, SpO₂ 88-92%. High flow = O₂ 8-10 L/min) (3)
 - o Less acidosis with titrated O₂ vs high flow. High flow in COPD can lead to acidosis that is correctable with reduced oxygen concentration.
 - o Titrated oxygen reduced death from respiratory failure 58% for all patients and 78% for COPD patients.
- **Hyperoxia can depress respiratory drive.** This can be dangerous in asthma, COPD, and obesity hypoventilation syndrome (5).

1. [Circulatory and metabolic effects of oxygen in myocardial infarction - PubMed \(nih.gov\)](#)
2. [Air Versus Oxygen in ST-Segment-Elevation Myocardial Infarction - PubMed \(nih.gov\)](#)
3. [Oxygen Therapy in Suspected Acute Myocardial Infarction - PubMed \(nih.gov\)](#)
4. [Effect of high flow oxygen on mortality in chronic obstructive pulmonary disease](#)



[patients in prehospital setting: randomised controlled trial \(nih.gov\)](#)

5. [Episode 29: Why is hyperoxia harmful? - The Curious Clinicians](#)
6. [Physiology, Respiratory Drive - StatPearls - NCBI Bookshelf \(nih.gov\)](#)