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## Oxygen – Yes, it can be toxic !!

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

- Give O<sub>2</sub> if SpO<sub>2</sub> <90%
- **Goal SpO<sub>2</sub> no higher than 94%**
- Goal SpO<sub>2</sub> is then 90-94%. Higher O<sub>2</sub> 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, SpO<sub>2</sub> 88-92%. High flow = O<sub>2</sub> 8-10 L/min) (3)
  - o Less acidosis with titrated O<sub>2</sub> 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 \(nih.gov\)](#)