* **Hypoxia types**
  1. Hypoxic Hypoxia
  2. Hypemic Hypoxia
  3. Stagnant Hypoxia
  4. Histotoxic Hypoxia

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* **What hypoxia is**

Hypoxia is a state in which oxygen is not available in sufficient amounts at tissue level to maintain adequate homeostasis; this can result from inadequate oxygen delivery to the tissues either due to low blood supply or low oxygen content in blood (hypoxemia).

Hypoxia can vary in intensity from mild to severe and can present in acute, chronic, or acute and chronic forms. The response to hypoxia is variable; while some tissues can tolerate some forms of hypoxia/ischemia for a longer duration, other tissues are severely damaged by low oxygen levels.

**##############################################################################Hypoxic Hypoxia ##############################################################################**

* **What Hypoxic Hypoxia is**

In hypoxic hypoxia, there is a lack of oxygen in the arterial blood. The oxygen tension is lowered in both the lungs and the arterial blood, and the hemoglobin is not saturated with oxygen to its normal extent. This type of hypoxia affects the body as a whole and is one of the most serious forms of hypoxia. Hypoxic hypoxia is often produced by low tensions of oxygen in the inspired air as is seen in high altitudes, breathing of inert gases, and the inhalation of anesthetic agents. Abnormal lung conditions may also produce hypoxic hypoxia. Emphysema, asthma, pneumonia, or pneumothorax encourage the formation of this type of hypoxia. Mechanical obstruction of the airway by foreign objects, laryngospasm, or bronchospasm inhibits the flow of oxygen from the atmosphere into the lungs, creating a state of oxygen want. Shallow respiratory movements from any cause, with either a decrease in rate or amplitude, may cause hypoxic hypoxia. A chronic state of hypoxic hypoxia may result from a patent foramen ovale and other embryo logical malformations of the heart and blood vessels.

* **Causes**
* **Oxygen content in venous blood**
* **Oxygen content in arterial blood**
* **cyanosis**

**############################################################################## Hypemic Hypoxia ##############################################################################**

* **Definition**
* **Causes**
* **Oxygen content in venous blood**
* **Oxygen content in arterial blood**
* **Cyanosis**

**##############################################################################Stagnant Hypoxia ##############################################################################**

* **Definition**

Stagnant hypoxia is due to a decrease in the rate of flow of the circulating blood. Local regions of the body are usually involved, but it may affect the entire body. The blood is saturated normally with oxygen, and the oxygen load, as well as the tension under which it is held, also may be normal. Hypoxia is produced because the amount of oxygen reaching the tissues is inadequate. Sluggishness in the rate of the circulating blood allows the blood to stagnate and give up a greater percentage of its oxygen. This slow circulation also permits the accumulation of a greater quantity of carbon dioxide in the tissues. Stagnant hypoxia is produced by failure of the circulation, impairment of venous return, and shock.

* **Causes**

This form of hypoxia is caused by inadequate blood flow, which results in less oxygen available to the tissues. Causes include: -

* **Edema**: Edema, a swelling of the tissues (like from heart failure), can limit the ability of oxygen present in the blood to adequately reach the tissues.
* **Ischemic** **hypoxia**: Obstruction to the flow of blood carrying oxygen, like from a clot in a coronary artery (a [heart attack](https://www.verywellhealth.com/heart-attack-symptoms-1746023)), can prevent the tissues from receiving oxygen.
* **Oxygen content in venous blood**
* **Oxygen content in arterial blood**
* **cyanosis**

**##############################################################################Histotoxic Hypoxia**

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* **Definition**

As the term suggests, the tissue cells are poisoned and are unable to accept oxygen from the capillaries. In this type of hypoxia the cells are not able to utilize the oxygen, although the amount of oxygen in the blood may be normal and under normal tension. Histotoxic hypoxia is produced by cyanides. Theoretically, it may be produced by any agent which depre ses cellular respiration.

* **Causes**

With histiotoxic hypoxia, an adequate amount of oxygen is inhaled through the lungs and delivered to the tissues, but the tissues are unable to use the oxygen that is present. Cyanide poisoning is a possible cause.

* **Oxygen content in venous blood**
* **Oxygen content in arterial blood**
* **Cyanosis**

**##############################################################################Anemic hypoxia**

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* **Definition**

The arterial blood contains oxygen at its normal tension in anemic hypoxia, but there is a shortage of functioning hemoglobin. Anemic hypoxia, on the whole, is less serious than hypoxic hypoxia. However, it does affect the whole body. Ancmic hypoxia may be caused by acute or chronic hemorrhage, primary or secondary anemia, alterations in the hemoglobin of the blood (caused by nitrates, chlorates, or coal tar derivatives), and carbon monoxide poisoning.

* **Causes**

In the setting of anemia, low hemoglobin levels result in a reduced ability of the blood to carry oxygen that is breathed in, and hence, a diminished supply of oxygen available to the tissues. Causes include:

* Anemia of any cause: This can include iron deficiency anemia, pernicious anemia, and [chemotherapy-induced anemia](https://www.verywellhealth.com/chemotherapy-induced-anemia-symptoms-and-treatment-2249320).
* Hemorrhage: Hemorrhage can be obvious, such as from injuries sustained in an accident, or hidden due to internal bleeding.
* Methemoglobinemia: Methemoglobinemia, also known as affinity hypoxia, is an abnormal hemoglobin that doesn't bind oxygen very well.
* Carbon monoxide poisoning: With [Carbon monoxide poisoning](https://www.verywellhealth.com/carbon-monoxide-poisoning-3885555), hemoglobin is unable to bind oxygen.
* **Oxygen content in venous blood**
* **Oxygen content in arterial blood**
* **Cyanosis**

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1. **Metabolic hypoxia:**

* **Definition**
* **Causes**
* **Oxygen content in venous blood**
* **Oxygen content in arterial blood**
* **Cyanosis**

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1. **FULMINATING** **HYPOXIA**

**Definition:**

Fulminating hypoxia is a newly recognized form of hypoxia. It is a very rapidly induced type of hypoxia caused by the inhalation of undiluted inert gases such as nitrogen, methane, or helium. In anesthesia, fulminating hypoxia may be produced by administering nitrous oxide anesthesia without the simultaneous use of oxygen.