

## Backlinks

- [Medical papers](#)
- [Partial pressure of oxygen in the human body: a general review](#)

## Abstract

The human body is a highly aerobic organism, in which it is necessary to match oxygen supply at tissue levels to the metabolic demands. Along metazoan evolution, an exquisite control developed because although oxygen is required as the final acceptor of electron respiratory chain, an excessive level could be potentially harmful. Understanding the role of the main factors affecting oxygen availability, such as the gradient of pressure of oxygen during normal conditions, and during hypoxia is an important point. Several factors such as anaesthesia, hypoxia, and stress affect the regulation of the atmospheric, alveolar, arterial, capillary and tissue partial pressure of oxygen (PO<sub>2</sub>). Our objective is to offer to the reader a summarized and practical appraisal of the mechanisms related to the oxygen's supply within the human body, including a facilitated description of the gradient of pressure from the atmosphere to the cells. This review also included the most relevant measuring methods of PO<sub>2</sub> as well as a practical overview of its reference values in several tissues.

## Introduction

- The paper aims to provide a comprehensive review of the partial pressure of oxygen (PO<sub>2</sub>) in the human body.
- It discusses the factors affecting PO<sub>2</sub> and its significance in various physiological processes.

## Factors Affecting PO<sub>2</sub>

- PO<sub>2</sub> is influenced by several factors, including:
  - Altitude
  - Exercise intensity
  - Age
  - Health status
  - Environmental conditions (e.g., temperature, humidity)

## Oxygen Transport and exchange in the Human Body

- The circulatory system transports oxygen from the lungs to the tissues via blood.
- Oxygen is exchanged between the blood and cells through diffusion across capillary walls.
- PO<sub>2</sub> varies depending on tissue type, metabolic rate, and local vascular conditions.

## Measurement of PO<sub>2</sub> in Different Body Compartments

- PO<sub>2</sub> can be measured using various techniques, including:
  - Tissue biopsy
  - Electrodes implanted in tissues or organs
  - Non-invasive methods (e.g., near-infrared spectroscopy)

## Clinical Applications and Implications of PO<sub>2</sub> Measurements

- PO<sub>2</sub> monitoring is used in:
  - Diagnosing and managing respiratory diseases
  - Assessing the effectiveness of oxygen therapy
  - Evaluating the impact of altitude on human physiology
  - Studying the effects of exercise on oxygen consumption

## Key Takeaways

- Understanding PO<sub>2</sub> is crucial for assessing and maintaining overall health.
- Factors affecting PO<sub>2</sub> can have significant implications on human physiology and performance.

- PO2 monitoring plays a vital role in diagnosing, managing, and researching various medical conditions and situations.