

## Terminology:

Partial Pressure of oxygen dissolved in arterial blood is termed PaO<sub>2</sub>. Percent saturation of oxygen bound to hemoglobin in arterial blood is termed SaO<sub>2</sub>.

When measured by a pulse oximeter, SaO<sub>2</sub> is termed SpO<sub>2</sub>.

PaO<sub>2</sub>, the oxygen that is dissolved in plasma is the driving pressure that forces oxygen to combine with hemoglobin.

Hypoxemia is a below-normal level of oxygen in your blood, specifically in the arteries. Hypoxemia is a sign of a problem related to breathing or circulation, and may result in various symptoms, such as shortness of breath.

## Physiology:

When oxygen demand increases, heart rate and cardiac output increases, which increases the flow of blood through the lung and the pressure required to force blood through the arterioles and capillaries of the lung. This is evident through a physical activity. Also a decrease in O<sub>2</sub> saturation also forces the heart to increase its activity to compensate with the decrease of oxygen level.

The underlying principle of the oximeter is that it measures the redness of the blood – the redder the blood the higher the oxygen saturation.

## Normal and low blood oxygen levels:

A range of 94–99% is normal for healthy adults' breathing room air which contains 21% oxygen. Anyone who is not achieving the critical blood oxygen saturation level of 90% (SpO<sub>2</sub>) or of 55–60mmHg (PaO<sub>2</sub>), may require additional oxygen.

If the level is below 90 percent, it is considered low resulting in hypoxemia. Blood oxygen levels below 80 percent may compromise organ function, such as the brain and heart, and should be promptly addressed. Continued low oxygen levels may lead to respiratory or cardiac arrest.

Low blood oxygen levels can result in abnormal circulation and cause the following symptoms:

- shortness of breath
- headache
- restlessness
- dizziness
- rapid breathing
- chest pain
- confusion
- high blood pressure
- lack of coordination
- visual disorders
- sense of euphoria
- rapid heartbeat

SPO <sub>2</sub> Reading (%)	Interpretation
95-100	Normal
91-94	Mild Hypoxemia*
86-90	Moderate Hypoxemia*
<85	Severe Hypoxemia*

\*Hypoxemia is defined as decreased partial pressure in blood and oxygen available to the body or an individual tissue or organ.

## PI is included in Looke® Premium model. What is PI?

Perfusion Index, or PI, is a relative assessment of the pulse strength at the monitoring site. – PI display ranges from 0.02% (very weak pulse strength) to 20% (very strong pulse strength). The accepted perfusion index is a value of 5 as the border for description of low or high (ie, 0–5 is low, >5 is high)

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Canada: 999 W Broadway, #720, Vancouver, BC V5Z 1K5  
US: 99 Wall Street #1698, New York, NY 10005