

diffusing capacity may be elevated in acute congestive heart failure, asthma, polycythemia, and pulmonary hemorrhage.

ARTERIAL BLOOD GASES The effectiveness of gas exchange can be assessed by measuring the partial pressures of oxygen and CO₂ in a sample of blood obtained by arterial puncture. The oxygen content of blood (Ca_{O₂}) depends upon arterial saturation (%O₂Sat), which is set by Pa_{O₂}, pH, and Pa_{CO₂} according to the oxyhemoglobin dissociation curve. Ca_{O₂} can also be measured by oximetry (see below):

$$\text{Ca}_{\text{O}_2} \text{ (mL/dL)} = 1.39 \text{ (mL/dL)} \times [\text{hemoglobin}] \text{ (g)} \times \% \text{ O}_2 \text{ Sat} \\ + 0.003 \text{ (mL/dL/mmHg)} \times \text{Pa}_{\text{O}_2} \text{ (mmHg)}$$

If hemoglobin saturation alone needs to be determined, this task can be accomplished noninvasively with pulse oxymetry.

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