
The stress at high altitude is hypobaric hypoxia resulting from the lowered barometric pressure. It is unavoidable, unmodifiable, and uniform for everyone at any given altitude. Organisms at altitude must adapt to the stress of limited oxygen availability relative to sea level and still sustain aerobic metabolic processes. For example, at an altitude of 4,000 m (13,200 ft) the concentration of oxygen in 1 liter of inspired air is 21% oxygen, just as at sea level, but because of the lower barometric pressure, 1 liter of air at 4,000 m contains just 63% of the number of oxygen molecules at sea level. Hypoxia is defined as a lack of oxygen in the body tissues. This can be caused either by a shortage of oxygen in the air being breathed or by a number of physiological/pathological issues affecting blood circulation or the quantity of oxygen carried by haemoglobin in the blood. The effects of hypoxia include fatigue, confusion, euphoria, inability to concentrate, impaired decision-making, impaired psychomotor performance, loss of consciousness and, eventually, death. Hypoxia does not cause discomfort. The effects of high altitude on humans are considerable. The oxygen saturation of hemoglobin determines the content of oxygen in blood. After the human body reaches around 2,100 metres (6,900 ft) above sea level, the saturation of oxyhemoglobin begins to decrease rapidly. However, the human body has both short-term and long-term adaptations to altitude that allow it to partially compensate for the lack of oxygen. There is a limit to the level of adaptation; mountaineers refer to the altitudes above 8