

## **Altitude mountain sickness among tourist populations: a review and pathophysiology supporting management with hyperbaric oxygen.**

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#### **Abstract**

In the mountain climbing community, conventional prevention of altitude mountain sickness (AMS) relies primarily on a formal acclimatization period. AMS symptoms during mountaineering climbs are managed with medication, oxygen and minor recompression (1524-2438 m altitude) using a portable chamber, such as the Gamow Bag. This is not always an acceptable therapy alternative in a predominantly elderly tourist population. The primary problem with reduced pressure at high altitude is hypoxaemia, which causes increased sympathetic activity, induces pulmonary venous constriction, while increasing pulmonary blood flow and regional perfusion. Rapid ascents to altitude contribute to an increased incidence of decompression sickness (DCS). The treatment of choice for DCS is hyperbaric oxygenation, thus, treatment of high-altitude induced hypoxaemia using hyperbaric oxygenation (HBO(2)) is logical. Life Support Technologies group and the Center for Investigation of Altitude Medicine (CIMA, in Cusco, Peru) propose a comprehensive and multidisciplinary approach to AMS management. This approach encompasses traditional and advanced medical interventions including the use of a clinical HBO(2) chamber capable of recompression to three times greater than sea level pressure (3 atmosphere absolute (ATA)). The system uses a series of AMS hyperbaric treatment profiles that LST has previously developed to the US military and NASA, and that take greater advantage of vasoconstrictive effects of oxygen under true hyperbaric conditions of 1.25 ATA. These profiles virtually eliminate AMS rebound after the initial treatment often seen in conventional AMS treatment, where the patient is either treated at altitude, or does not recompress back to sea level or greater pressure (1.25 ATA), but returns directly to the same altitude where AMS symptoms first manifested.

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