

Altitude Sickness

Travelers who will be visiting mountain areas should be prepared to recognize and respond to the symptoms of altitude illness, which are caused by the lower level of oxygen available at high elevations. The human body can eventually adjust to changes in altitude, but the process (called acclimatization) takes time. Each person has their own “acclimatization line,” and genetic factors probably play a part in an individual’s response to altitude. Illness can begin as low as 5,000 feet (1,500 meters) in some people, but for most people this acclimatization line initially occurs somewhere near 9,000 feet (2,700 meters). Your line can be adjusted (you can adapt to the higher elevation) by following preventive techniques.



Prevention

- The simplest way to avoid or reduce the symptoms of altitude illness is to **ascend slowly**, to give your body time to become accustomed to changes in oxygen levels. If you begin to feel symptoms of altitude illness (see other side), you are probably near your acclimatization line and you should spend the night at or just below your acclimatization line. Once you reach that line, it is best to keep your daily altitude gain under 1,000 feet (300 meters). Diamox (acetazolamide) is a medication that can be used to help you acclimatize, when your itinerary does not allow you to gradually adjust to high altitude. See the attached information.
- It is important to **increase your fluid intake** to counteract the dehydration caused by dry mountain air and your increased respirations (caused by low oxygen levels). Alcohol may enhance dehydration and should be avoided.
- You can exceed 1,000 feet of altitude gain during a daytime climb, but should descend to lower elevation to sleep (sleep at no more than 1,000 feet higher than you slept the night before). This approach, “**climb high, sleep low,**” will help you acclimatize more efficiently.
- Be willing to **recognize and acknowledge when you have symptoms** of altitude illness. Sometimes there is tremendous pressure to keep up with the group schedule or risk being left behind, especially in an organized group with a strict schedule.
- Always **descend** to lower elevation if symptoms persist, especially in the event that symptoms worsen or fail to improve after resting. Descent should never be delayed because it is “too late” in the day or other reasons of convenience.

Symptoms of Altitude Illness

Altitude illness is generally divided into three syndromes: acute mountain sickness (AMS), high altitude pulmonary edema (HAPE), and high altitude cerebral edema (HACE). HAPE and HACE often occur simultaneously.

<p><u>Acute Mountain Sickness (AMS)</u> (if symptoms occur, it can progress to the pulmonary form, HACE, or the cerebral form, HACE, and you must stop your ascent and rest)</p>	<ul style="list-style-type: none"> • headache[†]— can progress from mild to excruciating • loss of appetite—can progress to nausea and vomiting • fatigue—can progress to extreme exhaustion • swelling of the face, hands and feet
<p><u>Cerebral form (HACE)</u> (descent is essential)</p>	<ul style="list-style-type: none"> • begins as AMS becomes HACE when AMS has progressed to include: <ul style="list-style-type: none"> • decreased level of consciousness/confusion and/or • truncal ataxia, similar to the unsteady gait of a drunk person (i.e. you can have them “walk the line” to test for this) • can progress to coma and death • can occur alone or in combination with HAPE
<p><u>Pulmonary form (HAPE)</u></p>	<ul style="list-style-type: none"> • presents as decreased exercise tolerance (increased difficulty walking uphill), which can progress to: <ul style="list-style-type: none"> • severe breathlessness with exertion • breathlessness at rest • substantial chest fullness • cough • eventually progresses to production of pink, frothy sputum (a very critical symptom, eventually leading to death) • can present with or without cerebral symptoms

Danger signs of Altitude Sickness include:

- severe headache
- extreme fatigue
- breathlessness (especially while resting)
- any neurological problems such as stumbling, poor judgement or changes in consciousness.

It is crucial to descend until symptoms begin to diminish if these signs are present. Altitude illness can be life threatening and yet is entirely preventable.

* While symptoms listed *can be* present in any given case of suspected altitude illness, *they need not all be present* to consider a diagnosis of altitude illness. Good advice to bear in mind is "If you are not doing well at altitude, it's altitude illness until proven otherwise."

[†] The headache often starts at the back of the head, radiates forward, and is constant in nature. However, a throbbing frontal headache can also be due to altitude. Thus it is vital that all headaches be treated as altitude headaches.

