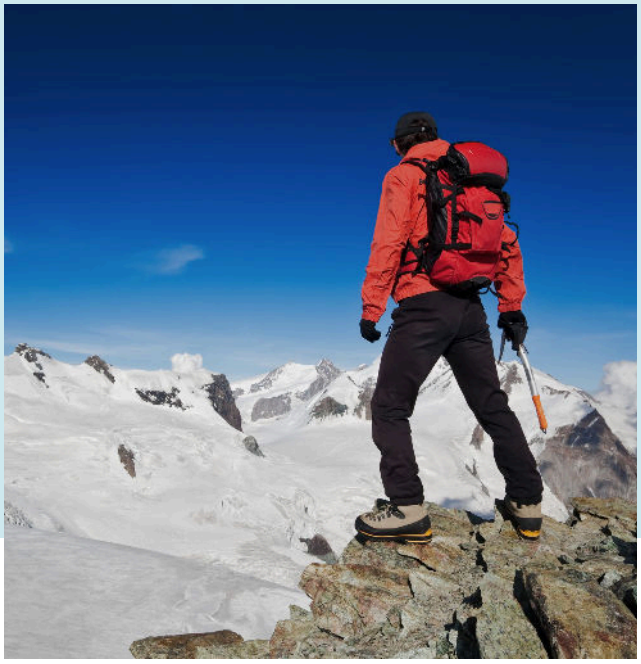
Altitude Sickness - Preventing and Treating



Travel to high altitude has become increasingly accessible and popular, but also carries with it the risk of unpleasant or potentially serious illness. Altitude sickness occurs when the body has not had time to acclimate, or physically adapt, to the lower amount of oxygen in the air at high altitudes. Altitude sickness most commonly occurs at altitudes greater than 2500 meters (8200 feet). The risk and severity increase at higher altitudes and with more rapid ascents.

Men, women and children are equally susceptible to altitude sickness. Those who have had prior altitude sickness are likely to have recurrence. Those with chronic illness such as anemia or certain cardiopulmonary conditions are at increased risk as well. Flying directly to high altitude (such as Lhasa, Tibet with an altitude of 3600 meters) increases the risk, as there has been no time for the body to acclimate.

There are three main types of high-altitude sickness:
1) acute mountain sickness (also called AMS)
2) high-altitude pulmonary edema (also called HAPE), which affects the lungs
3) high-altitude cerebral edema (also called HACE), which affects the brain.

AMS is the most common type and will often, but not always, precede HAPE or HACE.

FACTSHEET

Altitude Sickness - Preventing and Treating

Acute Mountain Sickness (AMS) is characterized by headache as well as feeling unwell, dizzy, fatigued and irritable. It may also cause poor sleep, nausea, vomiting and loss of appetite. AMS usually develops within the first 24 hours of arriving at altitude. Symptoms are generally self-limited and resolve in 24-48 hours by resting at the same altitude, but it may progress to a more severe form.

It is unwise to ascend to higher altitudes if experiencing AMS.

Allowing the body to gradually acclimatize by ascending slowly is the best way to prevent AMS.

It is also important to **drink extra fluids and eat light, high carbohydrate meals.** Over-exertion, alcohol, tobacco and any sedating medications should be avoided. Sleeping at lower altitudes after climbing higher during the day can be a helpful strategy. Listen to your guide, and watch out for your travel companions, as **denial of AMS symptoms is common**. Be prepared to adjust your schedule if you need to spend an extra night at a lower altitude before ascending higher.

Acetazolamide (a diuretic) and dexamethasone (a steroid) are two medications that have been used to **speed up acclimatization** and **help prevent AMS symptoms**. When used to prevent AMS, one of these prescription medications is typically taken for 3-5 days, starting 24 hours before ascent to altitude above 2500 meters. Acetezolamide should not be used in those with a sulfa allergy. In addition to using it for prevention, acetazolamide and dexamethasone may also be used to **treat headache and nausea associated with mild AMS**. Proper dosing and use of acetazolamide, dexamethasone, or other medications to prevent or treat AMS should be discussed with your physician.

Children are also susceptible to altitude sickness, but their symptoms may be **harder to recognize**. Watch for loss of appetite, irritability or signs of headache, as children may not easily verbalize what they are feeling. Children with chronic pulmonary or cardiac conditions, sickle cell anemia and Down syndrome are at particularly vulnerable to more severe forms of altitude sickness.

Acetazolamide and dexamethasome have also been used in children, but have not been well studied. **The best way to prevent AMS in both children and adults is by ascending slowly and staying well hydrated.** Children under two years old are advised not to sleep at altitudes above 2000 meters (6560 feet), and children two to 10 years old are advised not to sleep above 3000 meters (9840 feet). Once above 2500 meters, ascending a maximum of 300 meters (1000 feet) per day is advised. Children with anemia, lung or heart conditions should be evaluated by a physician prior to planning a high altitude journey.

FACTSHEET

Altitude Sickness - Preventing and Treating

High-altitude pulmonary edema (HAPE) and high-altitude cerebral edema (HACE) are severe and potentially life threatening forms of altitude sickness. Symptoms of HAPE include dry cough, decreased exercise performance, fatigue, rapid heart rate and respiratory rate. Symptoms of HACE include severe headache, difficulty walking a straight line, unusual behavior, and persistent vomiting. These forms of severe altitude sickness require descent or evacuation to a lower altitude, and there should be no delay. Other medical treatment may also be necessary and assistance should be sought from qualified personnel.

Travel to high altitudes is thrilling, but it is not without risks. Careful planning and proper care may minimize or prevent altitude sickness and save your holiday!

Key Points to Remember:

1 **Slow ascent is the best way to prevent acute mountain sickness (AMS)**

2 **Remain well hydrated and eat light, high carbohydrate meals when at high altitude**

3 **Mild AMS usually resolves with rest, hydration and analgesics (paracetamol or aspirin)**

Rapid descent is the best way to treat more severe symptoms 4

Seek medical help with any severe symptoms 5

Medications for AMS prevention may be helpful for those who have had AMS in the past, or for those who must rapidly ascend to high altitudes 6