



ALTITUDE

As we ascend to higher altitudes the pressure of oxygen in the air decreases. Although the body can adapt to this change (or acclimatise) it can take time. Symptoms of altitude sickness can occur as a result of the decreased availability of oxygen. The number of people travelling to high altitude regions is increasing and many of these places are being easily reached by air, not giving the body sufficient time to acclimatise. Travellers to high altitudes should be aware of altitude sickness and take appropriate precautions. Every year unnecessary deaths occur from altitude sickness.

ALTITUDE SICKNESS

Altitude sickness or Acute Mountain Sickness (AMS) describes a number of symptoms that can occur if you ascend to altitude too quickly. AMS is infrequent at altitudes below 2500 m above sea level. At 3500m 50% of travellers will feel unwell and at 4300m nearly all travellers will feel unwell. Symptoms usually develop within a few hours, reach a maximum at 12-48 hours and settle in 3-4 days at static altitude. The key to prevention is to recognise the symptoms early.

SYMPTOMS

headache	dizziness	loss of appetite
generally feeling unwell	nausea	palpitations
shortness of breath	drowsiness	loss of
balance		



A safe general approach is that if you are not feeling well at high altitude, it is altitude sickness until proven otherwise.

<p>HIGH ALTITUDE PULMONARY OEDEMA (HAPO)</p> <ul style="list-style-type: none"> Caused by fluid accumulating in the lungs <p>SYMPTOMS</p> <ul style="list-style-type: none"> Rapid breathing even when resting Fast pulse – more than 110 per minute Chest tightness Blueness of lips and shortness of breath 	<p>HIGH ALTITUDE CEREBRAL OEDEMA (HACO)</p> <ul style="list-style-type: none"> Causes swelling of the brain <p>SYMPTOMS</p> <ul style="list-style-type: none"> Severe headache Drowsiness Loss of balance Unusual behaviour and personality change Progression to coma
<p>IF SYMPTOMS ARE IGNORED THEY CAN BE FATAL</p> <p>Immediate descent is essential (even in the middle of the night). A descent of as little as 300 metres can mean a matter of life or death.</p> <p>After descent, specialised treatment with oxygen chambers and medications can be given by experienced medical personnel.</p>	

PREVENTION

It is the rate of ascent that is critical in preventing AMS - you must ascend gradually.

The general rules are: -

- above 10,000 feet (3200m) ascend 1000 feet or 300m **maximum** per day.
- after every gain of 3000 feet (1000m) have one rest day.
- these are **minimums** - listen to your body and go more slowly if necessary.

Other helpful hints:

- drink lots of fluids
- eat a high carbohydrate diet
- sleep lower than the maximum altitude reached during the day
- avoid alcohol as it causes dehydration and reduces your ability to breathe
- avoid smoking
- avoid sedatives at night



Unfortunately, there is no way of predicting whether you will be initially prone to altitude sickness, and your susceptibility is not related to your age, fitness or general health. Children are 6-10 times more likely to get AMS and people who have had AMS before have an increased risk of redeveloping AMS on subsequent ascents.

MANAGEMENT OF ALTITUDE SICKNESS

If you have **severe** symptoms of altitude sickness, the best treatment is to DESCEND. If you only have **mild** symptoms, there are a few things that may help you feel better – rest, drink plenty of

fluids, take paracetamol for your headaches, avoid strenuous exertion, and avoid alcohol. After 1 to 2 days at the same altitude, you will probably acclimatise and start to feel better. When symptoms have settled you may ascend slowly. If your symptoms don't settle or if you feel worse, you should descend.

Never ascend if you have severe symptoms of Altitude Sickness

DIAMOX (Acetazolamide)

This medication is commonly used by travellers to high altitude, and is safe if used with caution. There are two ways in which you can use Diamox:

1. Prevention: If you have travelled to high altitude areas before and know that you will experience symptoms at a certain altitude, you can start taking Diamox a day before you reach that altitude. This will reduce the severity of your altitude sickness symptoms. It is also often used if people are gaining altitude very quickly, and are therefore at higher risk of developing problems, eg flying from sea level to La Paz which is at 4000m.
2. Treatment: Some people prefer not to take Diamox preventatively, and want to see how their bodies cope at high altitude. Many people will not require any medications. However, if you start to feel unwell at high altitude, it is still possible to start taking the medication then. It can work quite quickly, and you may start to feel better within a couple of hours. It is useful to carry this medication with you if you are travelling to remote areas, because it may not be easily available if and when you need it.

Side-effects of Diamox:

Most side-effects are mild, if you experience them at all. The most common ones are frequent urination, and tingling around your lips and on your hands and feet. It is a sulphur based drug, and should not be used if you are allergic to sulphas. If you are on medications, please check with your doctor to make sure that it is safe for you to take Diamox.

OTHER PROBLEMS AT ALTITUDE

Dehydration	You lose far more fluid at altitude than you realise. It can make you feel dizzy, tired and give you a headache. Drink at least 2 litres of fluid per day, avoid alcohol and make sure your urine output is clear and copious.
Skin problems	Sunburn can be severe. Due to the thinner air, the sun's rays are much more intense. Use a 15 SPF+ sunscreen regularly. Certain drugs eg Doxycycline cause photosensitivity (increased sunburn risk). Dryness – use a good quality moisturiser.
Snow blindness	Using good quality sunglasses or goggles can prevent this.
Swelling	Puffiness of eyes, hands and feet is common at altitude. If you are otherwise feeling well this is not serious and will go away on descent.
Heart and Lung problems	These may be worse at altitude. Check with your doctor.
Thrombosis/ Blood clots	Blood thickens at higher altitudes and there is a higher risk of clots forming, particularly in your leg veins or lungs. Other risks include smoking, the contraceptive pill and previous clots. Discuss your risks with your doctor.
Muscle and joint pain	Trekking and skiing often involve being at altitude. Old injuries may cause problems. Speak to your doctor before leaving if you are concerned.

ALTITUDES OF SOME CITIES AND MOUNTAINS

	Metres	Feet	
Mt Kosciuszko, Australia	2228		7310
Mt Cook, New Zealand	3754	12316	
Mont Blanc, France	4807	15771	
Mt Everest	8848	29082	
Kathmandu, Nepal	1337	4388	
Mexico City, Mexico	2308	7572	
Cuzco, Peru	3225	10600	
Lhasa, Tibet	3685	12090	

