



# Going to Altitude



## Definition

When discussing the medical condition associated with altitude it is useful to have some broad definitions.

- ✘ High Altitude 1,500 to 3,500 metres (5000 - 11,500ft)
- ✘ Very High Altitude 3,500 to 5,500 metres (11,500 - 18,000ft)
- ✘ Extremely High Altitude >5,500 metres (>18,000ft)

## What is 'Altitude Sickness'

This is the series of signs and symptoms which may occur when a person climbs or is taken to a high altitude. It can affect different people in a variety of ways ranging from mild headaches to sudden death. Both male and female can succumb rapidly and the condition can be seen at any age.

**Frequently the deaths which occur are in the younger age group who tend to disregard the early warning signs.**

## What causes it

The primary condition which occurs is the change in the available oxygen concentration. This makes the body work harder to maintain the necessary levels of oxygen for the cells. At sea level the normal oxygen concentration is 21%. At 12,000 ft the amount of oxygen is reduced by 40% and so breathing rate and cardiac activity need to increase to compensate for this deficiency. Unfortunately many of those affected by the condition still push onward despite warning signs and the body just cannot cope.

## Who is at particular risk

Those with hypertension, chronic lung disease, atherosclerotic disease, past history of blood clots, epilepsy, sickle cell anaemia etc. Those who disregard the very serious and regularly fatal risk of ascending without due care to high altitude!

## What are the warning signs

These are very variable but include;

- ✘ Nausea
- ✘ Weakness
- ✘ Significant headache
- ✘ Breathlessness
- ✘ Loss of appetite
- ✘ Dehydration
- ✘ Disturbed sleep
- ✘ Yawning
- ✘ Dizziness
- ✘ In coordination

### Toe to heel walking

If you think a member of your party may be developing altitude sickness ask them to walk along in a straight line. This is a very simple test for in coordination

## AMS / HAPE / HACE

These are different degrees of severity within the condition.

- ✘ AMS - Acute Mountain Sickness
- ✘ HAPE - High Altitude Pulmonary (O)edema
- ✘ HACE - High Altitude Cerebral (O)edema

## Treatment

**Always remember** this condition can be rapidly life threatening and must be always considered a risk in those at altitude. The main form of therapy is to descend as soon as possible and only to ascend again once full acclimatization has occurred. This usually means going down by at least 300 to 600 ft. and remaining there for the necessary time. This can be up to 3 days.

## Medications

Two main tablets can be used to lessen the risk from altitude sickness.

**Diamox (Acetazolamide)** is a Sulpha drug which increases respiration to help metabolise more oxygen. It should be started at least 24 hours before ascent and maintained for about 3 to 5 days when at high altitude. 125mgs twice a day appears to be the most satisfactory dosage for most adults. Tingling of the lips and finger tips, blurring of vision and change in taste can occur. This is often noticed with soft drinks but these symptoms usually subside when the tablets are stopped or the dose is lowered.

**Dexamethasone** (a steroid tablet) is occasionally used to lessen the risk of brain swelling. Its use is more controversial and must only be on the prescription of a doctor. It is taken as 4mgs twice a day and can be taken with Diamox if necessary. **Ibuprofen** (Brufen) can be used to lessen the headache from altitude sickness but take care not to mask more serious developing symptoms. *Avoid hypnotics (sleeping tablets) as these may lessen your normal respiratory drive.*

## Groups going to altitude

Always split into small groups (perhaps 3 or 4) who can look out for each other all the time. Any peculiar symptoms should be reported to the trip leader immediately. Yawning, slow responses to questions, unsteadiness, lack of concentration are all warning signs which must be taken very seriously.

## Arriving at altitude

If you have to arrive at a high destination by plane (Quito 9500ft, Nairobi 6000ft, La Paz 13,000ft, Bogota 8,600ft) try to ensure that you have no energetic plans for the first few days. Avoid alcohol and make sure you rehydrate yourself sufficiently.

## Take Care, be Sensible

Remember this leaflet can only give very general information. Every individual will require a detailed medical consultation before they undertake a high altitude journey.

## Further information

<http://www.princeton.edu/~oa/safety/altitude.html>

[http://www.ismmed.org/np\\_altitude\\_tutorial.htm](http://www.ismmed.org/np_altitude_tutorial.htm)

<http://wwwn.cdc.gov/travel/yellowBookCh6-AltitudeIllness.aspx>

National Travel Vaccine Appointment Tel 1-850-48 76 74

Web Address: [www.tmb.ie](http://www.tmb.ie)

This leaflet has been prepared using information supplied from W.H.O. Center for Disease Control (US) and other International sources.

- ✓ Travel Accessories *Altitude/TMB/updated9July2007*
- ✓ Tropical Diagnostic Laboratory
- ✓ Tropical Disease Screening Centre
- ✓ W.H.O. registered Yellow Fever Vaccination Centre
- ✓ International Vaccination and Malaria Advice Centres

- ◆ Aston Quay (USIT)
- ◆ Blanchardstown
- ◆ Bray
- ◆ Clarehall
- ◆ Cork
- ◆ Dun Laoghaire
- ◆ Galway
- ◆ Gorey
- ◆ Grafton Street
- ◆ Inchicore
- ◆ Kerry

- ◆ Limerick
- ◆ Maynooth
- ◆ Naas
- ◆ Ongar
- ◆ Shannon
- ◆ Sligo
- ◆ Stillorgan
- ◆ Tinahely
- ◆ Walkinstown
- ◆ Waterford