

# Acute Mountain Sickness (AMS)

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Whether you are flying in to La Paz (3658m) or Lhasa (3685 m), sightseeing in Cuzco (3225m), trekking in the Himalayas (often above 4000m) or climbing Kilimanjaro (5895m), all involve travelling at high altitudes.

## What is Acute Mountain Sickness?

Anyone may experience health problems related to the decreased availability of oxygen at altitude: acute mountain sickness (AMS).

All travellers to high altitudes should be aware of altitude sickness and take appropriate precautions. There is a period of 6-36 hours before sickness starts. The lack of oxygen causes mild symptoms with most people acclimatising over a few days. Symptoms are sometimes likened to the feeling of the "flu" coming on or a hangover, but include headache, nausea, loss of appetite, breathlessness on exertion, tiredness, dizziness, difficulty sleeping; frequent awakenings and irregular breathing during sleep.

Severe mountain sickness may start suddenly without warning or progress from a mild altitude illness. Severe illness occurs in 2% of travellers who go up to 4000m – 5000m and occasionally occurs at lower altitude. The severe forms of AMS occur due to fluid accumulation in the brain and/or lungs. These conditions are known as: High Altitude Cerebral Oedema (HACE) or High Altitude Pulmonary Oedema (HAPE).

**HAPE** results in a number of symptoms such as breathlessness at rest, persistent cough, marked fatigue, increased heart rate, and tightness in the chest, frothy spit sometimes blood stained and or a bluish colour to the lips and fingernails.

**HACE** symptoms include mental confusion, severe headache, behavioural changes, drowsiness and difficulty with balance and co-ordination. Worsening of these symptoms will result in unconsciousness or coma and death.

## Who is susceptible?

AMS may occur when travelling from sea level to above 2500m. There is no way of predicting who will experience AMS. Susceptibility is not related to your age, fitness or general health, or even if you have been at altitude in the past without problems.

Travellers with certain medical conditions including heart or lung disease, blood clotting problems, high blood pressure, diabetes and joint problems should seek advice before travelling to high altitude. More than 50% of travellers will have some symptoms of AMS at 3500m and almost all will do so if they ascend rapidly to 4500m. Symptoms usually develop during the first 6-36 hours at altitude and will usually resolve within 1-2 days if no further ascent occurs.

### For further information see:

**British Mountaineering Council**  
[www.thebmc.co.uk/](http://www.thebmc.co.uk/)

**International Society of Mountain  
Medicine** [www.ismmed.org/](http://www.ismmed.org/)

<http://www.medex.org.uk/>

## Prevention of Acute Mountain Sickness

- **Ascend slowly:** The most important prevention for AMS is adequate acclimatisation and regular rest days. Above 3000m ascend only 300m per day and have a rest day every third day. If possible avoid travel to altitudes above 3500m directly from sea level.
- **Climb high, sleep low:** It's advisable to sleep below the highest point that you have reached.
- **Keep well hydrated** and eat a light calorific diet.
- **Avoid immediate strenuous exercise** if arriving at an airport at altitude until you have acclimatised

- **Acetazolamide (Diamox)** can be used as prophylaxis for acute mountain sickness when a gradual ascent cannot be guaranteed but it does not prevent severe illness. The medication is available in the clinic for those who are going above 3000m and for those subjects who are slow acclimatisers. Requests for acetazolamide for those travelling to lower altitudes are sometime considered. Acetazolamide should not be used as an alternative to gradual ascent. Acetazolamide is a sulphonamide medication, and is contraindicated in people who are allergic to sulphur drugs. Other side effects include numbness or tingling in hands, feet, and lips, taste alterations, and ringing in the ears. The drug causes increased urination. The adult dose is 125mg twice a day, starting 1-2 days before ascent and continues for 2 days until acclimatised or descending.
- **Other remedies** e.g. coca leaves are widely used in some parts of the world, but their role in prevention of AMS is unclear.

## Treatment of Acute Mountain Sickness

**Mild AMS** (e.g. breathlessness on exertion, loss of appetite, mild headache)

- Rest for 1-2 days at the same altitude unless symptoms worsening.
- If symptoms do not settle with rest you should descend. **Never ascend if you have any symptoms of altitude sickness.**
- Treat with simple analgesics (e.g. paracetamol, aspirin, ibuprofen) for headaches.
- Avoid sleeping pills, narcotic pain relief (e.g. codeine) and alcohol.
- Drink plenty of fluids (4 – 5 litres per day); the dry air at high altitude may lead to dehydration that makes the symptoms of AMS worse.

**Severe AMS** (e.g. breathless at rest, persistent cough, mental confusion, severe headache, drowsiness)

**Immediate descent is necessary: failure to descend could be life threatening**

If descent is not possible e.g. because of adverse weather conditions:

- Oxygen and drug treatments may help
- Specially designed pressure bags (portable compression chambers) are sometimes available on specific expeditions.