

Acetazolamide for altitude sickness

Most trekkers and climbers do not need, and should not take acetazolamide tablets (formerly known as *Diamox*).

- Altitude problems are unlikely below 2,500 metres (8,000 feet).
- Anybody can suffer from illness caused by altitude. Nobody is immune to it.
- The best way to reduce the risk is to acclimatise and be prepared to descend.

Acclimatise

Ascend slowly with overnight stops at regular intervals.

- People planning to ascend over 3,000 metres (10,000 feet) should spend a night at an intermediate elevation below 3,000 metres before they start to ascend.
- Above 3,000 metres ascend only 300-500 metres (1,000-1,500 feet) a day to each next new sleep height.
- If more than 500 metres (1,500 feet) of ascent is required in the day, descend back to 500 metres to sleep (climb high, sleep low).
- For every 1,000 metres (3,000 feet) of ascent stop for 2 nights sleep before going higher.

Symptoms of mild early acute mountain sickness

Stop ascending until feeling better.

- Headache not relieved by paracetamol and drinking a litre of water (early symptom of acute mountain sickness).
- Fatigue and weakness.
- Dizziness and light-headedness.
- Difficulty sleeping.

Do not ascend if these symptoms develop. Stop until the symptoms resolve (usually 24-48hrs) or descend. Descending will usually make the symptoms go more quickly.

Ascent can be continued when these symptoms subside, usually after 24-48 hrs.

- Do not keep ascending.
- It helps to drink plenty.
- Avoid alcohol and sedatives.

Emergencies requiring immediate descent

Two sets of symptoms requiring immediate descent:

1. Fluid on the lungs

Showing up as struggling to breath, extreme fatigue, rattling breathing, coughing, blue or grey lips and fingernails, drowsiness, collapse, confusion and death. This condition is known as HAPE (High Altitude Pulmonary Oedema). **The cardinal feature is extreme shortness of breath** – being short of breath when everybody else has got their breath back.

2. Fluid on the brain

Showing up as changes in behaviour, lethargy, and loss of coordination (unable to walk in a straight line). This can progress to coma and death. This condition is known as HACE (High Altitude Cerebral Oedema). **The cardinal feature is cognitive impairment (inability to think straight and carry out normal tasks).**

These two conditions are emergencies requiring immediate descent, **even if this is in the night.** The descent needs to be at least 500-1,000 metres (1,500-3,000 feet) and as soon as is possible. **Delay can be fatal.**

In addition to descent, treatment includes oxygen, steroids and hyperbaric oxygen (oxygen delivered in a high pressure chamber).

Notes about HACE and HAPE

- Can come without any warning.
- Can develop rapidly over a period of hours.
- Often start at night, although can come on in the day.
- There may be no preceding symptoms or warning.
- Can affect people who have ascended previously to the same height without problems.
- Can affect people who have followed the guidelines for acclimatisation.

- Can affect people who are taking acetazolamide.
- Can affect fit and unfit people and indigenous people including porters.

About acetazolamide

Acetazolamide increases the amount of urine produced and changes the acidity of the blood. The net effect is to improve breathing and reduce fluid around the brain and in the lungs.

Acetazolamide is not licensed to prevent and treat altitude sickness, although it has long been used for this purpose.

Acetazolamide side effects

Most people taking acetazolamide for short courses experience no side effects.

Side effects reported include: a 'tingling' feeling in the fingers and toes, some loss of appetite, taste disturbance, flushing, thirst, headache, dizziness, fatigue, irritability, and depression.

Uses of acetazolamide

1. In the mild acute mountain sickness (headache, fatigue, light headedness, difficulty with sleep) symptoms resolve more quickly with acetazolamide. The symptoms usually go by themselves in around 24-48 hrs. This usually reduces to around 12-24 hrs with acetazolamide.
2. Taking acetazolamide will reduce the likelihood of altitude sickness in people who are forced to ascend without proper acclimatisation. Serious illness and even death are still possible. acetazolamide is not a substitute for acclimatisation.
3. Acetazolamide improves the pattern of breathing during sleep at altitude and thus quality of sleep. During sleep at altitude the breathing pattern alters; rapid breaths are followed by prolonged pauses. This is not dangerous but tends to lead to poor sleep.

We do not recommend taking acetazolamide for people planning to undertake routine ascents. Most people who acclimatise properly do not need it. Taking acetazolamide can give a false sense of security.

Acetazolamide dosage

1. For the treatment of mild early acute mountain sickness (headache, fatigue, light headedness, difficulty with sleep): Acetazolamide 250mg (one tablet) twice daily until symptoms resolve, when planned ascent can be resumed.
2. Where rapid ascent without proper acclimatisation cannot be avoided: Acetazolamide 125mg (half a tablet) twice daily, started the day before ascent or as soon as possible after starting to ascend and continue for 2-3 days after final altitude is reached.
3. For disturbed breathing pattern during sleep: Acetazolamide 125mg (half a tablet) **twice daily. Continue until descent to an altitude where sleep is no longer a problem.** Acetazolamide is not a sedative.

Notes

Stopping acetazolamide does not cause a rebound in symptoms. The symptoms will not be worse than they would have been if acetazolamide had not been taken in the first place.

Taking acetazolamide for early symptoms does not mean it is OK to keep ascending. Do not ascend until symptoms resolve completely, usually 24-48 hrs.

Acetazolamide does not mask serious underlying symptoms. It treats the cause, not the symptoms. If a person feels better on acetazolamide it is because their condition has improved.

Take a trial dose of half a tablet 3-4 days before travel to check for possible adverse reactions.

Treat altitude with respect. Do not imagine that a strong person can simply battle through. People who climb and hike in high places have a reputation for pushing themselves. When it comes to altitude; planning ahead, taking one's time and responding to one's own body are virtues.

Always read the Patient Information Leaflet supplied with tablets.

Dr Fox - www.drfox.co.uk/altitude-sickness