

## Altitude sickness

Mountain climbers are at risk of developing altitude sickness, which may be harmful or even fatal if its onset is ignored. Ascending to heights greater than 2,500m can trigger a range of symptoms including headache and vomiting. This is caused by going up too rapidly, which doesn't allow the body enough time to adjust to reduced oxygen and changes in air pressure. In severe cases, fluid builds up within the lungs, brain or both. Men are at greater risk of altitude sickness than women, for reasons unknown. It is important to remember that being young and fit doesn't reduce your risk, and just because you haven't experienced altitude sickness in the past, doesn't mean you are immune to the condition during future climbs. The only sure method of prevention is to make sure you take plenty of time during your ascent. Altitude sickness is also known as mountain sickness.

### Symptoms

The initial symptoms of altitude sickness can include:

- Headache
- Lethargy
- Drop in performance
- Lack of coordination
- Insomnia
- Appetite loss
- Dizziness
- Nausea
- Vomiting.

### Symptoms of severe altitude sickness

There are two main types of severe altitude sickness, including high altitude pulmonary oedema (fluid within the lungs) and high altitude cerebral oedema (fluid within the brain). In most cases, both conditions occur at the same time. A person with pulmonary oedema may drown if their lungs fill with too much fluid. Symptoms of severe altitude sickness include:

- Breathlessness
- Heart palpitations
- Blue-tinged skin and nails due to lack of oxygen (cyanosis)
- Frequent coughing because of fluid in the lungs
- Sputum may be frothy or tinged pink with blood from the damaged lung tissue
- Irrational behaviour, such as refusing to acknowledge symptoms
- Inability to sit up or walk in a straight line.

### Prevention strategies

The best way to prevent altitude sickness is to go up slowly. Once you are more than 3,000m above sea level, only advance 300m or less per day. Be sure to take an extra day of rest and acclimatisation for every subsequent 1,000m. Other suggestions include:

- See your doctor for information and advice before your trip.
- Some climbers believe that switching to a high-carbohydrate diet before they go trekking helps to reduce the risks.
- Be prepared. Pack all necessary first aid items, including medications.
- Remember that medications such as acetazolamide and dexamethasone are best used as a treatment for mild altitude sickness, not as a prevention measure. These medications could mask the early warning signs.
- Acetazolamide may be recommended as a preventative, if you are flying into a location at altitude, and will not have time to adjust.
- Only climb with experienced guides.
- Increase your fluid intake. You may need up to seven litres every day.

- Avoid cigarettes and alcohol.
- Sleeping tablets must not be used, as they can lead to and increase in hypoxia due to their central nervous system depressing action.
- Be aware that you are at increased risk of altitude sickness if you have experienced it before.

### **First aid**

Use the 'buddy system', because you will most likely refuse to acknowledge your own symptoms of altitude sickness. It is not unusual for affected climbers to stubbornly refuse to go down. If one of your party is showing the signs of altitude sickness, first aid suggestions include:

- Don't climb any higher. Camp and wait until the symptoms subside. This can take a couple days.
- Make sure they avoid alcohol and cigarettes.
- Give them aspirin or paracetamol in the usual recommended doses.
- Encourage them to breathe deeply every few minutes to decrease the level of carbon dioxide in their blood.
- Give them the recommended doses of the drug dexamethasone.
- In severe cases of altitude sickness, descend immediately. Aim for a descent of around 500m to 1,000m.
- Give them diuretic drugs (which promote more urine) to reduce the risk of fluid accumulation.
- Administer oxygen from a portable oxygen cylinder.

### **Hyperbaric oxygen therapy**

Hyperbaric oxygen therapy uses specially designed chambers or rooms that can withstand high pressures. Air at sea level contains 21 per cent oxygen, while hyperbaric oxygen therapy can deliver up to 100 per cent pure oxygen. This form of therapy floods the body with oxygen and relieves the symptoms of altitude sickness. A portable oxygen cylinder enables oxygen to be administered via a facemask or hood.

### **Important warning**

Never use oxygen therapy or altitude sickness medications to continue an ascent once symptoms have occurred. The result can be fatal.

### **Where to get help**

- Your doctor

### **Things to remember**

- Mountain climbers are at risk of developing altitude sickness.
- Altitude sickness is caused by ascending too rapidly, which doesn't allow the body enough time to adjust to reduced oxygen and changes in air pressure.
- Symptoms include headache, vomiting, insomnia and drop in performance and coordination.
- In severe cases, fluid can build up within the lungs, brain or both, which can be fatal.
- First aid options include descending immediately, medications and the use of oxygen administered from a portable container.

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North East Valley Division of General Practice

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