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Fact Sheet: Altitude Sickness

Altitude sickness happens when your body is unable to adapt to a low-pressure, low-oxygen environment — typically at about 8,000 feet (2438.4 m) above sea level. Above this altitude, roughly 75% of people will feel some symptoms of altitude sickness.

There are situations that put you at greater risk for feeling the effects of altitude sickness.

- What elevation you live at normally vs. how high you venture to.
 - Those who live close to sea level will feel the effects of high elevations more.
- It is exacerbated if you ascend in elevation too quickly.
 - An abrupt change to a higher elevation — such as flying from low elevation to higher — seems to have more of an effect.
- If you've suffered from altitude sickness before, you're more susceptible to experiencing it again.

There are three types of altitude sickness: Acute Mountain Sickness (AMS), High-Altitude Pulmonary Edema (HAPE), and High-Altitude Cerebral Edema (HACE).

Symptoms

- **Acute Mountain Sickness**
 - Lack of appetite, nausea, or vomiting
 - Fatigue
 - Dizziness
 - Insomnia
 - Shortness of breath upon exertion
 - Nosebleed
 - Persistent rapid pulse
 - Swelling of hands, feet, and/or face
- **High Altitude Pulmonary Edema (HAPE)**
 - Symptoms similar to bronchitis
 - Persistent dry cough
 - Fever
 - Shortness of breath even at rest
- **High Altitude Cerebral Edema (HACE)**
 - Headache that does not respond to medication
 - Difficulty walking

- Altered mental state (confusion, changes in alertness, disorientation, irrational behavior)
- Loss of consciousness
- Increased nausea
- Blurred vision or retinal hemorrhage

Preparation

- Keep hydrated
 - Before you travel, while flying and throughout your entire trip.
 - A Mayo Clinic's study recommends drinking 2-3 liters of water per day, for at least one day before your trip, and having a 1-liter bottle of water with you at all times while you're at your destination.
- Reduce caffeine and alcohol
 - Try to eliminate use for at least one day before travel and during your trip as best you can.
- Eat small meals
 - Try to eat more carbohydrates as they are easier to digest in lower oxygen environments.
- Talk to your doctor – Many health conditions can be exacerbated by high altitudes
 - Heart problems
 - High blood pressure
 - Lung issues
 - Sickle cell anemia
 - Sleep apnea
 - Pregnant people should consult doctor prior to travel
- Pre-medicate
 - Your Dr. may prescribe medication to reduce the effects of altitude sickness
 - Acetazolamide (DIAMOX)
 - Recent studies have shown that taking 600mg of Ibuprofen every 8 hours may help with AMS symptoms
 - There are also local/regional remedies that you may want to consider.

Acclimation

Given time, your body can adapt to the decrease in oxygen molecules at higher altitudes. This is the best way to minimize the symptomatic effects of altitude sickness.

- If you're traveling to altitudes higher than 8000 feet (2438.4 m), try to spend a night at a medium altitude and head to a higher elevation the next day. If this isn't possible, avoid

large meals, alcohol, and being very active after you arrive. Rest and drink plenty of liquids.

- If your hike starts at high elevation, spend a few days adjusting to the altitude prior to any major physical exertion.
- It is best to sleep no more than 1,500 feet (457.2 m) higher than you did the night before. This helps the body adjust gradually to the decreased amount of oxygen.
- When hiking or climbing above 10,000 feet (3048 m), increase your altitude by no more than 1,000 feet (304.8 m) a day and build a rest day into your schedule for every 3,000 feet (914.4 m) gained.

First Aid and Treatment

- If you have any of these symptoms at altitude, assume that it is altitude sickness until proven otherwise. Do not ascend any further with symptoms.
- Acclimatization is possible for mild cases. However, if symptoms worsen, descent is the best option. Descend to the altitude where the victim last woke up symptom free.
- Keep the victim warm and hydrated.
- For HAPE and HACE descend immediately, even if at night, delay could be fatal.
- For HAPE and HACE seek medical attention immediately, even if symptoms subside upon descent.

References and Additional Resources

- [Altitude.org](#) Resources for altitude sickness, an oxygen-altitude calculator, and cautionary tales.
- Not Your Average American: [7 Essential Tips for Tackling High Altitude Travel](#)
- Cleveland Clinic-Health Essentials: [Mountain Vacation? 5 Tips to Cope with Your Altitude Sickness](#)
- [Preparing for Safe Travel to High Altitude](#) – Mayo Clinic Study
- Travelex Insurance Services: [How to Avoid Altitude Sickness While Traveling](#)
- Yowangdu Experience Tibet: [Avoiding Altitude Sickness Complete Beginner's Guide](#)
- Center for Wilderness Safety: [Altitude Safety 101](#)