Traveling in High Altitude

Product of the Research & Information Support Center (RISC)

The following is based on open-source reporting.

Summary

In mid-July, an experienced American mountaineer, athlete, and physician, Andy Zimet, was found dead alone on Lenin Peak (23,406 feet above sea level) in the Pamir Mountains of Kyrgyzstan. With no discernable trauma or evidence of foul play, authorities believe he died of altitude sickness.

"High altitude" generally describes locations 8,000 feet above sea level and higher; however, altitude sickness can impact anyone traveling from one altitude to a notably higher one. Awareness is necessary because at this elevation oxygen levels are lower and can cause difficulties for travelers. As you increase in altitude, there is less oxygen and water in the air. Many higher-altitude tourist destinations, particularly those for trekking and adventure sports, are remote and may lack access to medical care.

What is Altitude Sickness?

According to the Centers for Disease Control & Prevention (CDC), altitude sickness (also called Acute Mountain Sickness or AMS) is often compared to an alcohol hangover with accompanying headache, tiredness, lack of appetite, nausea, and vomiting. Usually, symptoms tend to appear 2-3 days after arrival at high altitude destinations. Mild cases can often be treated with over-the-counter painkillers or anti-inflammatories. However, severe, albeit rare, reactions include the swelling of the brain (high-altitude cerebral edema) and lungs (high-altitude pulmonary edema), for which a person should descend to a lower altitude immediately. Descent is the primary treatment for most altitude sickness.

Where is it?

Although travel to destinations above 8,000 feet (approx. 2,400 meters) above sea level generally triggers concern about altitude sickness, symptoms can manifest in travelers going from any elevation to a relatively higher one, particularly if travel occurs quickly. Some airports with steep ascent requirements include: Gustaf III Airport (SBH) on St. Bart's; Courchevel Airport (CVF), Courchevel, France; Tenzing-Hillary Airport (LUA), Lukla, Nepal; and Baghdad International Airport (BGW) in Iraq. Further, in the one-hour flight from Jorge Chavez International Airport (LIM), Lima, Peru, to Alejandro Velasco Astete International Airport (CUZ) in Cusco, Peru, passengers ascend 11,000 feet.

Altitudes can be found and compared here. Some of the major cities (i.e. more than 250,000 occupants) in high altitude locations include:

Location	Elevation (ft)
El Alto, Bolivia	13,615
Juliaca, Peru	12,549
Oruro, Bolivia	12,159
Lhasa, China	12,002
La Paz, Bolivia	11,942
Cusco, Peru	11,151
Huancayo, Peru	10,013
Quito, Ecuador	9,350
Golmud, China	9,216
Sucre, Bolivia	9,153

Impact to Private Sector Operations

Altitude sickness can impact travelers of any type (business, tourism, education, volunteer, etc), although staff of aviation industries and mountain adventurers and their support staff are generally in more high elevation environments. Whatever the reason for being in a high-altitude destination, consider allowing for a day or two for travelers to acclimate, especially before any strenuous activities. Consuming 2-3 liters of water per day will help the body adjust to higher elevations. Descent options should be planned for in case someone suffers more severe symptoms and needs to relocate to a lower elevation. All travelers should be advised of symptoms, as someone suffering from them may not recognize altitude sickness themselves or may dismiss their own symptoms.

Understand symptoms associated with altitude sickness

Consider allowing a day or two to acclimate

Drink 2-3 liters of water per day

Have a plan for relocation in case it becomes necessary

Ascend gradually

Be prepared with altitude sickness medication

Avoid excessive tobacco, caffeine, salt, & alcohol

At altitudes higher than 8,000 ft, limit ascent to 1,000 ft/day

Guidance

The CDC offers guidance for traveling in high-altitude locations. The easiest way to avoid altitude sickness is to ascend, by foot, car, or aviation, gradually and be prepared with altitude-sickness medication, especially if a gradual ascent is not possible. Prescription medications may be recommended for rapid travel (e.g. via helicopter), especially to very high altitudes. However, anyone suffering the effects of altitude sickness should not continue the ascent until he/she has acclimated; should symptoms worsen, descend immediately. American Family Physician also recommends that after reaching 8,000 feet, travelers do not ascend more than 1,000 feet per day thereafter. Further, people with pre-existing or acute medical conditions, including heart or lung disease, diabetes, and pregnancy, should consult a physician before traveling to high-altitude destinations. Mayo Clinic also advises a consultation with a medical provider for anyone suffering from sinus infections, bronchitis, sleep disorders, and musculoskeletal conditions. Mayo advises travelers to stay hydrated and to avoid excessive tobacco, caffeine, salt, and alcohol.

Some natural supplements may help alleviate symptoms in some travelers; however, in some cases, these are controlled substances in the U.S. (as well as in other countries) and are not regulated. Consumption of these supplements is generally not advised; travelers who use them do so at their own risk.

For Further Information

For additional information on occupational health, please contact OSAC's Health and Disease Analyst. For information on the geopolitical security climate in impacted regions, please contact OSAC's Research & Analysis Unit.