

ALTITUDE ILLNESS




ALTITUDE ILLNESS

- **WHAT IS ALTITUDE ILLNESS?**
 - ACUTE MOUNTAIN SICKNESS (AMS)
 - HIGH ALTITUDE CEREBRAL EDEMA (HACE)
 - HIGH ALTITUDE PULMONARY EDEMA (HAPE)
- **WHAT IS A WRMC AND 1ST AID APPROACH?**



ALTITUDE ILLNESS

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[Volume 21, Issue 2](#), Pages 146–155, June 2010

Wilderness Medical Society Consensus Guidelines for the Prevention and Treatment of Acute Altitude Illness

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DOI: <http://dx.doi.org/10.1016/j.wem.2010.03.002>



ACUTE MOUNTAIN SICKNESS (AMS)

- SYMPTOMS

- *Headache*
- *Nausea/vomiting*
- *Loss of appetite*
- *Lethargy/fatigue*
- *Dizziness/weakness*
- *Sleep disturbance*
- *Ataxia (advanced symptom bordering on HACE)*



ACUTE MOUNTAIN SICKNESS (AMS)

- TREATMENT

- *Descent is the best treatment.*
- *Rest at current altitude*
- *Rehydration, Food intake*
- *Use of acetazolamide, antiemetics, oxygen*
- *Portable hyperbaric chamber (Gamow)*
- *In extreme cases, consider dexamethasone*



GAMOW BAG



ACUTE MOUNTAIN SICKNESS (AMS)

- PREVENTION
 - *Ascend Slowly*
 - *Prophylactic acetazolamide*
 - *Proper hydration and nutrition*
 - *Awareness vs Denial*



ACUTE MOUNTAIN SICKNESS (AMS)

TABLE 1-6 Risk Categories for Acute Mountain Sickness

Risk Category	Description
Low	<p>Individuals with no prior history of altitude illness and ascending to <2800 m (9186 feet)</p> <p>Individuals taking >2 days to arrive at 2500-3000 m (8202-9843 feet) with subsequent increases in sleeping elevation <500 m (1640 ft)/day and an extra day for acclimatization every 1000 m (3281 feet)</p>
Moderate	<p>Individuals with prior history of AMS and ascending to 2500-2800 m (8202-9186 feet) in 1 day</p> <p>No history of AMS and ascending to >2800 m (9186 feet) in 1 day</p> <p>All individuals ascending >500 m (1640 ft)/day (increase in sleeping elevation) at altitudes above 3000 m (9843 feet) but with an extra day for acclimatization every 1000 m (3281 feet)</p>
High	<p>History of AMS and ascending to >2800 m (3281 feet) in 1 day</p> <p>All individuals with a prior history of HAPE or HACE</p> <p>All individuals ascending to >3500 m (11,483 feet) in 1 day</p> <p>All individuals ascending >500 m (1640 ft)/day (increase in sleeping elevation) above >3000 m (9843 feet) without extra days for acclimatization</p> <p>Very rapid ascents (e.g., <7-day ascents of Mt Kilimanjaro)</p>

Modified from Luks AM, McIntosh SE, Grissom CK, et al: Wilderness Medical Society consensus guidelines for the prevention and treatment of acute altitude illness, *Wilderness Environ Med* 21:146, 2010.

AMS, Acute mountain sickness; HACE, high-altitude cerebral edema; HAPE, high-altitude pulmonary edema.

Notes:

Altitudes listed in the table refer to the altitude at which the person sleeps.

Ascent is assumed to start from elevations <1200 m (3937 feet).

The risk categories described above pertain to unacclimatized individuals.



VERTICAL MEDICINE RESOURCES



HIGH ALTITUDE CEREBRAL EDEMA (HACE)

- SYMPTOMS

- *Severe headache*
- *Loss of appetite. Nausea, Vomiting*
- *Lethargy, Fatigue, Weakness*
- *Sleep Disturbance*
- *Dizziness, Ataxia*
- *Behavioral changes, Confusion*
- *Neurologic deficits*
- *Advanced stages: coma*



HIGH ALTITUDE CEREBRAL EDEMA (HACE)

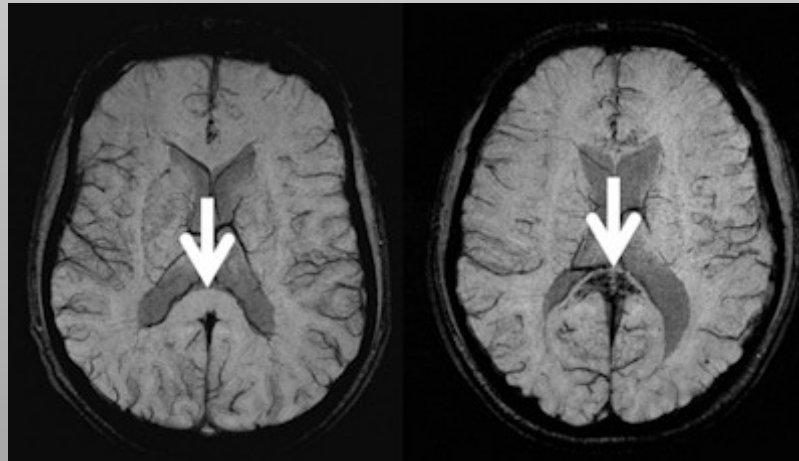
- **TREATMENT**

- ***Descend! Descend! Descend!***
- ***Oxygen***
- ***Dexamethasone***
- ***Hyperbaric Chamber***
- ***Acetazolamide***



HIGH ALTITUDE CEREBRAL EDEMA (HACE)

- PREVENTION
 - *Ascend Slowly*
 - *Prophylactic Acetazolamide*



HIGH ALTITUDE PULMONARY EDEMA (HAPE)

- SYMPTOMS

- *Dyspnea*

- *Reduced exercise tolerance*

- *Dry cough that progresses...*

- *Acrocyanosis*

- *Other symptoms often include: nausea, insomnia, headache, dizziness, confusion, orthopnea, chest pain*



HIGH ALTITUDE PULMONARY EDEMA (HAPE)

- TREATMENT
 - *Descend! Descend! Descend!*
 - *Oxygen*
 - *Semi Fowlers position*
 - *Nifedipine*
 - *Hyperbaric Chamber*
 - *With AMS/HACE? Consider dexamethasone*



HIGH ALTITUDE PULMONARY EDEMA (HAPE)

- PREVENTION

- *Ascend Slowly*

- *Prophylactic use of nifedipine with prior history*



PREVENTION BEATS TREATMENT OR RESCUE

