April 19, 2013

RE: IMPORTANT INFORMATION FOR TRAVELLERS TO HEMKUND SAHIB

Travel Advisory: Acute Mountain Sickness (AMS) at Hemkund Sahib. AMS is a disease that affects people who ascend to high altitude. It can be fatal if left untreated.

About Hemkund Sahib

Hemkund Sahib, India. Nestled in the foothills of the Himalayas, Hemkund Sahib is a popular Sikh pilgrimage in the north Indian state of Uttarakhand. Beautifully perched atop a mountain surrounded by several larger peaks and a lake, it is a popular site for religious pilgrims and avid hikers alike.

It is located at an altitude of 4,330 m (14,206 ft), making it one of the world’s highest pilgrimages. By comparison the summit of the highest mountain in western Europe, Mont Blanc, is 4,810 m; a difference of only 480 m.

This vast height, however, can mean trouble for visitors.

High Altitude Medicine 101: Introducing Acute Mountain Sickness (AMS)

When you travel to high altitude you run into a number of problems. Without getting too scientific, the higher up you go the less oxygen available to you in the air. Lower oxygen can interfere with many processes in the body but when your blood oxygen levels drop too low it can interfere with brain function.
When this starts to happen you exhibit symptoms of dizziness and nausea; which are the hallmark signs of Acute Mountain Sickness (or AMS). If you don’t pay attention to these symptoms and continue ascending the problem will get worse and you could develop High Altitude Pulmonary Edema (HAPE) or High Altitude Cerebral Edema (HACE). These are quickly followed by death.

At Hemkund Sahib oxygen levels are ~40% less than they are at sea-level (see above diagram). When your body is this starved for oxygen it’s trying to send whatever it has left to the brain to maintain consciousness. If you’re hiking 15 km up a mountain (to get to, say, Hemkund Sahib) you’re now having to divert that limited oxygen to your muscles and away from your brain. This puts you at an even greater risk of developing AMS.

**Putting the Two Together: Risk of AMS at Hemkund Sahib**

So how does this relate to visiting Hemkund Sahib, you ask? Well as mentioned before, 4,330 m (the altitude of Hemkund Sahib) is pretty darn high. For any Vancouverites reading this, imagine stacking 4 Grouse Mountains on top of one another and you’ve got yourself a Hemkund Sahib. Now imagine going from sea-level to that altitude in 3-4 days – and worse-still – ascending 2,500 m in 1-2 days! Most altitude experts suggest you ascend only 500 m per day to avoid altitude sickness (a common term for AMS). If you’re pretty handy with a calculator you’ll quickly realize that travellers are ascending to Hemkund Sahib much too quickly - some up to 5 times faster than they should!
A study conducted by ATMA researchers recently found that approximately one-third of all pilgrims who ascend to Hemkund Sahib develop AMS. **With ~150,000 pilgrims visiting Hemkund each year that means almost 50,000 people are likely to develop AMS.** Worst still, many are unaware of the condition and what to do if it progresses.


**What You Need to Know About AMS**

The symptoms of AMS are:

- Headache
- Dizziness and/or lightheadedness
- Fatigue and/or weakness
- Difficulty sleeping
- Nausea, vomiting, or other gastrointestinal problems

The diagnosis of AMS is based on the above symptoms. Basically, each of the above symptoms is scored from 0 (absent) to 3 (severe/incapacitating). Score each symptom and then add it all up. If you score a total of 3-5 you have mild AMS and you’ll want to stop ascending and rest. **If you score greater than 5 you have severe AMS and you need to descend immediately!**

For the official scoring system used to diagnose AMS please click [here](http://athousandmetresabove.org/info/research/a-pilot-study-on-the-prevalence-of-acute-mountain-sickness-at-hemkund-sahib/).
There is currently **no way of knowing who will develop AMS** when travelling to high altitude. Certainly, if you've travelled to high altitude (greater than 3,000m) before and developed AMS then you're predisposed to getting AMS again. **Level of fitness, contrary to what many people think, is not related to development of AMS.** So even if you can run a marathon in 3 hours flat don't think you're immune to AMS when you tackle Hemkund.

In spite of these, there are a few things you can do to reduce your risk of developing AMS. These include:

- **Taking Acetazolomide** (Diamox) prophylactically (meaning, before you get the problem). Talk to a travel doctor.
- **Drinking lots of water** before and during the hike.
- **Not over-exerting yourself.** Hike slowly. You don't get extra points for running to Hemkund Sahib.
- **Acclimatizing.** This means getting used to the low oxygen in increments. If possible, spend at least 1 night inGovindghat (the town at the end of the road and the start of the hike) and a **minimum** of 1-2 nights in Ghangaria (the midway town between Govindghat and Hemkund). If you can spare more time, spend a few extra nights in Ghangaria. Consider checking out the nearby Valley of Flowers, a UNESCO World Heritage Site, on one of your acclimatization days.
- **Be aware of the symptoms of AMS.** Normally the first thing to greet you is a pounding headache. If you feel this developing stop hiking and rest. If it persists consider hiking back down and taking a day to acclimatize.

While we were conducting our research we would frequently speak with pilgrims (typically younger men) who did not rest at the midway town (meaning they hiked for ~16 hours straight and ascended 2,500 m in a single day), drank almost no water and were wondering why their heads felt like they were going to explode! Remember, reaching Hemkund Sahib is not a race. Do you want your memories of Hemkund Sahib to consist of nausea, migraines and vomiting? Probably not. Proceed slowly and enjoy the journey.

**If You Remember Nothing Else Remember This**

Make no mistake, **AMS is a serious condition** and **if you do not descend to lower altitude when you experience symptoms of AMS it could be FATAL.** It is imperative that travellers to Hemkund Sahib are aware of the symptoms and what to do if they or others are affected.

**Please share** this article to help us raise awareness regarding the dangers of AMS at Hemkund Sahib.

Regards,

Office of Development Research
A Thousand Metres Above