



COLORADO ACADEMY OF FAMILY PHYSICIANS

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Living Healthy: High Altitude Sickness

You've seen the T-shirts, "Colorado - Is This Whole State High?" It's true - Colorado does have the "highest" average altitude of the 50 states and with that distinction comes a number of unique problems.

What Causes High Altitude Sickness?

To review the science of high altitude sickness, remember a few facts:

First, our atmosphere is 21 percent oxygen. That is true at sea level and at 20,000 feet. However, it is the partial pressure of oxygen that determines how much oxygen gets through our lungs and into our arteries. In other words, 21 percent of oxygen at "one atmosphere" of pressure is more than 21 percent of oxygen at "three quarters of one atmosphere" of pressure.

What are the Symptoms?

Many a vacation has been ruined by High Altitude Illness or "mountain sickness" as it is often called. The relative lack of oxygen at high altitude can cause numerous symptoms and the higher we go, the more likely we are to experience problems ranging from tiredness, decreased appetite, insomnia, headache, lightheadedness, and nausea and vomiting. It is interesting that these symptoms can be seen in even the most physically fit individuals and can happen sporadically. You may be fine one time and feel awful at another time with the same altitude and conditions.

The rate of change of altitude often makes a difference. Our bodies are able to adjust to slow changes in altitude better than sudden changes. If you travel from sea level in Florida to a vacation spot in Vail, you are more likely to experience symptoms than if you travel from Denver - the Mile High City - to Vail.

The altitude problems may progress to more serious medical conditions called "high altitude cerebral edema" and "high altitude pulmonary edema." These are potential life threatening conditions that can only be addressed by getting to lower altitudes with higher oxygen availability.

High altitude cerebral edema causes swelling of the brain. When it causes difficulty walking straight, irritability, and confusion, it is serious. It can feel like a viral flu-like illness with aches and pains. People can progress from mild symptoms to coma in as little as 12 hours, but usually this happens over 1-3 days.

High altitude pulmonary edema is caused by fluid building up in the tissues of the lung causing worsening lack of oxygen to the brain and other vital organs. Symptoms include shortness of breath with minimal exertion, coughing, and wheezing. Use of sleeping medications or alcohol may increase the likelihood of developing these symptoms. Administration of oxygen may help with this illness until the victim can get to lower elevations.

To prevent "high altitude illness:"

- Stretch out your trip and spend a few days acclimating to the altitude before doing strenuous activities at altitude.
- Drink water liberally and avoid caffeine, high salt and alcohol, which can act as diuretics.
- When playing, go ahead and aim high (go for that 14'er), but sleep low during your stay at altitude.
- Don't use sleep aids or alcohol, especially at higher altitudes.
- Dressing appropriately to avoid hypothermia (getting too cold) and staying hydrated will help prevent illness.
- Walking more slowly or exercising less than you are used to at lower altitudes may help.

For milder forms of "high altitude illness" your Family Physician might prescribe medications that may help prevent illness of shortness of breath and headaches. These are prescription medications that decrease the swelling in the brain. They can be used for people who have recurrent episodes of mountain sickness and should be taken in anticipation of going to high altitude.

Enjoy Colorado's great outdoors, but be aware!

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