

Review of: "Physiological Adaptation to Altitude: A Comparison of Fast and Slow Ascents to 5,300 m Above Sea Level"

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Potential competing interests: No potential competing interests to declare.

This paper reports on a comparison of a rapid (4-day) ascent from 2300m to 5300m with that of a slower (8-day) ascent. Although the study is small and measured outcomes are relatively few, the results are consistent with previous reports that indicate that a slower descent results in better acclimatization with fewer symptoms of acute mountain sickness. In general, the manuscript is well-written and easy to follow. The following points should be addressed:

1- Several factual statements made in the manuscript are either missing references or cite references that do not appear to support the fact that they are cited for. Examples:

- High altitude exposure results in... "Increased diuresis leads to higher hematocrit as plasma volume reduces and blood becomes more concentrated" needs a reference. "
- "but the effectiveness of this approach diminishes above 8,000 m" cites reference #2, but I don't see anything in this reference that really supports this statement.
- "In the most severe cases... must be combined with a prompt reduction in height of at least 300 m." I don't see this supported in the cited reference #40.

2- The size of the study groups that ascended at either the rapid or slow pace differed (13 for Everest and 7 for Kilimanjaro). It is not clear to what extent the people in the groups were the same, or whether the ethnic makeup of the two groups was similar. For example, if one group was mostly native Nepalese, the study findings would be seen in a different light.

3- Tables 1 and 2: It would be helpful to display not only the number of subjects that had the symptoms shown, but also the percentage of subjects in the group, since one group was almost twice as large as the other.

4- What were the criteria for taking acetazolamide, ibuprofen, and paracetamol? Were these only given to treat symptoms, or were they taken prophylactically? Likewise, it would be useful to know whether criteria for wearing facemasks were used and how this variable compared between study groups.

5- Table 3: It would seem that these data would be more easily understood if displayed graphically.

6- The Discussion mentions the Lake Louise score. Were these scores collected from subjects in this study? If so, it would

seem beneficial to report those scores.

7- The authors point out that temperature is a risk factor for climbers, but I do not see any comparison of temperatures experienced by the two study groups.

8- Can a comparison of the difficulty of the two treks be provided? For example, kilometers hiked or average grade?

8- Minor editing issues:

- Why are the wiki links for the terms “hypothermia” and “sunburn” in the 2nd to last sentence of the Introduction?
- The 3rd sentence of the Methods section has a syntax error ("and where").