Letters to the Editor

In Response to “Postexercise Peripheral Oxygen Saturation After Completion of the 6-Minute Walk Test Predicts Successfully Reaching the Summit of Aconcagua”

To the Editor:

In the article, “Postexercise Peripheral Oxygen Saturation After Completion of the 6-Minute Walk Test Predicts Successfully Reaching the Summit of Aconcagua,”¹ the authors reported a useful screening test to identify climbers with a very low likelihood of success. Postexercise peripheral oxygen saturation (SpO₂) in successful summiters was 80.8%, in nonsummiters it was 76.4%, but in those with a SpO₂ of <75%, only 1 of 10 made it to the top and back.

Two-thirds of subjects enrolled 12 to 24 hours after arrival at base camp (4364 m). The authors rightly stated that prior acclimatization could affect performance. High altitude illness, by definition, begins at 2438 m and the standard Horcones route begins at 2850 m. It was hoped that climbers had spent a prior night or two nearby. Arrivals 2 or 3 days later at base camp (4364 m) were still in their first few days of acclimatization to higher and higher camps. It was no surprise that some of them mildly desaturated with exercise during the study. Medical conditions, illness, age, or poor conditioning may have been responsible for some of those results, but perhaps much of this was early, unrecognized, subclinical, and/or reversible high altitude pulmonary edema with or without other symptoms of acute mountain sickness.

Here is my question: The authors propose using the screening test to caution new arrivals, in part for their safety, that their chances of summiting are slim if their postexercise SpO₂ is <75%. But need that warning be permanent? What if they are advised not to continue on “at their own pace” but, rather, to come back the next day (or at some time during the next several days) until they pass the test? Rather than using the test as “pass-fail” on that one day alone, it would be interesting to know how many of those first-day failures might improve with longer stays at the same altitude, thus improving acclimatization and the odds for eventual success. Serial testing and climbers’ cooperation is needed, of course, to answer this.

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Reference

1. Lazio MP, Van Roo JD, Pesce C, Malik S, Courtney DM. Postexercise peripheral oxygen saturation after completion of the 6-minute walk test predicts successfully reaching the summit of Aconcagua. *Wilderness Environ Med.* 2010;21:309–317.

In Reply to Dr Lankford

To the Editor:

We appreciate the interest that our article “Post-exercise Peripheral Oxygen Saturation After Completion of the Six-minute Walk Test Predicts Successfully Reaching the Summit of Aconcagua” has generated. We agree with Dr Lankford that lower post-exercise peripheral oxygen saturation (SpO₂) may be secondary to poor acclimatization or subclinical and/or reversible high altitude pulmonary edema.

Dr Lankford rightly states that ascent rate and prior acclimatization likely were factors in an individual’s rate of acclimatization. As one of the seven summits, Aconcagua is an international destination attracting climbers with varying itineraries. While we did not standardize the acclimatization profiles of the volunteers in our study, we did report the mean (95% CI) for the time spent between camps. Although itineraries vary, the most common expedition profile was as follows: Day 0, acquire permit at Mendoza (746 m), spend night at Mendoza; Day 1, ground travel from Mendoza to Horcones (2955 m), spend night at Horcones; Day 2, trek from Horcones to Confluencia (3415 m), spend night at Confluencia; Day 3, rest day at Confluencia or day hike to Plaza Francia (4300 m), spend second night at Confluencia; Day 4, trek from Confluencia to Plaza de Mulas base camp (4365 m). Abbreviated itineraries would place climbers at increased risk of complications from suboptimal acclimatization.

Like Dr Lankford, we would expect post-exercise SpO₂ to increase with improved acclimatization. The decision to continue an expedition or remain at base camp for further acclimatization is ultimately up to the individual climber. A number of factors, including individual health, time available, weather, supplies, and group dynamics, play into this decision. Objective information obtained at base camp such as post-exercise SpO₂ may be part of this decision-making process but should not form the entire basis for this decision. The use of