



# ASK DR. DEBBIE...

By Debra A. Hill, MD

## DIVING AFTER SKIING...WHAT IS THE BEST ADVICE?

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### Skiing after diving?

On Tue, 26 Apr 2005 11:36:18 -0700, "Mike" wrote:

*I SURVIVED. I spoke to Konrad at the dive picnic this last Saturday (PS great event) I told him I was (thinking of) going to do the dive and ski California thing that day. I advised me to stay at less than 30 feet depth to minimize me to 2 BAR pressure. He had done this in the advise of an instructor in the past when he had to fly out from a dive trip. That sounded pretty good to me, he was still here! But I did double check with some theory.*

*A quick google search the night before didn't sound good. Most sites I found gave me the standard recommendation to wait 12 hours minimum or 24 on a deep dive. However I didn't see any real technical info as to why, it was just a good idea. I final found there is some technical info put out by NAUI called "assent to altitude" tables. However I didn't have time to track down and purchase them so I relied on my advance dive book's chapter on diving at altitude.*

*It was written with concern about diving at altitude (decrease surface pressure) not driving to altitude but I figured it could apply. There are two concerns. 1) not all pressure gauges are accurate at elevation (I did not have to worry about that) and 2) the sea level dive table must be adjusted to reflect the equivalent greater depth*

*you are experiencing due to lower ambient pressure. Other aspects are involved in altitude diving but these two were my concern this day.*

*There are two ways to adjust your depth. One involves consulting a table and multiplying your actual depth by a factor greater than 1 depending on the altitude your dive starts at. Another way is to adjust your final pressure group by adding some multiple of a PG depending on the start as well. I used this last technique. I was down for 52 minutes at less than 33 feet according to my dive computer with no "no decompression time" limits triggered. This put me in pressure group J. According to the adjustment table I needed to added two pressure groups for each 1000 ft altitude. I planned go to 8000 ft so J + 16 put me a PG Z - right at the limit. I did a substantial safety rest at 15 ft on the way in and based on my estimated time of 3 hours till I got to the slopes this PG would decrease to PG B, I calculated. I now felt pretty confident now so, with Konrads advice, I decided to go for it!*

*I have to admit, the whole way up there I was a little paranoid. I was attune to every little ache or pain and sensation and had to determine if this was something out of the ordinary. Each time I convinced myself it was not but it was still a little edgy. I didn't relax until the final chair lift up to the top and I was still feeling "normal". I had delusions of being stuck on a chair lift 50 ft above ground and wiggling out or something. What should I do - keep gaining altitude or jump off and break a leg? Of course, I thankfully never had to make that decision.*

*Well I did it but I wouldn't recommend*

*it. The anxiety is just not worth it (afterwards the relief was exhilarating though) and the skiing hard to switch gears into dive mode (plus being less energetic due to increased nitrogen loading). If again, I definitely would do it in reverse order and maybe a night dive and some surfing mixed in.*

*As an aside; the person I went with may have actually came closer to death than me. We had gotten there late and so she did not go skiing. We were at mount Baldy and the lodge is at the top of a canyon with a fire road leading up to it. She decided to go for a hike to the lodge since the road is snow free below. Well it climbs up the side of the canyon in the trees and is quite isolated. About half way up she looks down next to the road by a tree and sees these two green eyes staring back. It turns out some type of BIG CAT was crouched down with ears pinned back in an aggressive position. Well she just kept going avoiding direct eye contact and that was the last of it. She thinks it was a bobcat but couldn't tell as it was crouched down. I talked to an employee who confirmed there are bobcat and at least one mountain lion in the area. I never thought there was large cats this close to humans! Anyway needless to say we both took the chair lift back down. All in all an exiting day for all!*

*P.S. Please thank and forward to Konrad for me as I don't have a email list and feel free to put in the newsletter if its worthy*

*Mike*

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Dear Mike,

Thanks for writing to me about your experience. I'm Glad to hear that you are OK—and that your friend, who saw the big cat stalking, her is OK too.

Basically your experience brings up three main issues:

- #1: The safety of driving up a mountain to higher altitude after diving, and
- #2: The safety of exercise after diving.
- #3: High altitude diving.

Yes, there are similar issues involved with altitude diving, driving up a mountain after diving, and flying after diving. All of these involve a decrease in atmospheric pressure. If you plan to dive at altitude use the recommendations for high altitude diving in terms of calculating your beginning and end of dive letter group. But, if you are considering

driving up a mountain after diving, you must use the same rules as flying after diving, i.e. wait a minimum of 12 hours before ascending to altitude—remember the inside of a plane is pressurized to about 6,000 to 8,000 feet above sea level. So ***driving up a mountain and flying in a plane are essentially equivalent.***

Regarding the safety of exercise after diving, I've certainly done things like play tennis for a couple of hours after diving, and even gone for a one hour run after diving. I definitely noticed that my energy level was a bit sapped—most likely from the excess nitrogen loading from diving prior to exercising. I too feel that these were not good choices and that I will follow the recommendation to wait 4 to 6 hours before engaging in exercise from now on. Why increase my risk of DCS, when I can play tennis or go running or skiing later when it's safer? **We as divers must remember that our sport is very unique and requires attention to a different set of safety issues than the usual sports that are performed at or around sea level—those having to do with on-gassing and off-gassing nitrogen at different atmospheric pressures. Basically we need to think of ourselves as a can of soda after we've been diving and that may help us remember what we can safely do.** I actually spoke with Karl Huggins, the Director of the Catalina Chamber, who said that the current recommendation regarding exercise after diving is to wait 4 to 6 hours before engaging in moderate exercise. Gentle exercise during your safety stop may be helpful in terms of promoting blood circulation to the tissues and aiding in the release of nitrogen. However, **strenuous exercise after diving can increase the likelihood of bubble formation particularly in the musculo-skeletal system.**

In the end, it appears that you, as I have, concluded the two most important things, that strenuous exercise after diving and going up in altitude are two risks not worth taking. Glad to hear that this time you were OK.

Happy and safe Diving!

Yours Truly,

*Debbie Hill-Titus, M.D.*