Repetitive Dives

by George Irvine

This area of the discussion needs to be prefaced by a couple of important reminders. One, keep in mind what I said about the level of offgassing in bubble form when the move is made to 1 ATA at the surface - this can be a real shower of bubbles if you do not follow the ascent recommendations that I made. Be that as it may, the other important point is the bubbles tend to GROW post dive as they take like gas in from around them. They peak in size and then diminish. This is all relative. If you look at decompression folklore, like what IANTD teaches, you will see references to bubbles peaking in size and frequency up to four hours after a dive. First of all, this applies more to people who should not be diving in the first place, and secondly it applies to air diving where there is no adequate way to decompress.

In my case, I totally clear of any signs of bubbles from the most horrendous dives in 30 minutes or less. That is what you should shoot for, but more importantly, shoot for no bubbles to start with by following my final ascent guidelines. Bubble growth is fact life. Showering bubbles post dive is a screwup.

As far as "residual nitrogen" or helium or whatever, this is a non-issue. It is inherently more true for nitrogen since we are full of it anyway, but the fact is the only consideration you have to give to repetitive dives is in the concept of ascent once you have taken a surface interval and may be still bubbling - you have to be far more careful about your ascent rate on a second dive due to this effect. See my article on "why we do not bounce dive" for all the reasons.

Otherwise, repetitive diving is a good thing, and you should do your shallower dive first and then your deeper one. The stupidity taught in that regard is beyond the pale.

First, what is the real risk? It is not DCS, it is CNS toxicity. The risk of pulmonary toxicity is also an issue more so than DCS.

Repetitive diving needs to be done with this in mind. You do not want to run high ppo2s over and over, and you certainly do not want to do multiday diving on high ppo2s. So the first thing we need to do is back off the working ppo2, and plan the decompressions such that we are not accumulating an excess exposure.

If you do you decompression the way I have described, including the way I ascend to the surface, you will greatly reduce the heavy bubble-form offgasing that generally occurs post-dive. If you are basically clean, you can dive again without penalty. If you are using the correct gas, the "residual" effect is greatly reduced. This effect is more designed to explain accumulation of gases in tissues which are not well perfused and as such tend to trap gas which becomes a battery for supplying gas to formed bubbles later on, so repetitive diving with a gut, or battery which holds gas, could contribute to making any bubbles on the next dive worse and contribute to them growing well after the dive.

If you do the decompression for the subsequent dives correctly, there is no reason to belabor the issue. From a logistical standpoint in the ocean, it is far safer to do a couple of back to backs than one long dive which requires a long mandatory decompression.

From a decompression point of view, we have seen that repetitive diving makes no difference, so we ignore the first dive in calculating the second. The only trick is that the second dive

should be deeper than or equal to the first, and you can not bounce dive after a dive of any kind. We have done back to back 300's with 60 minute bottom times with no change of deco schedule. However, since the real risk is oxygen exposure, we have discontinued that practice due in the WKPP.