

Minimum Decompression

by George Irvine

The fastest on-gassing occurs in the early stages of any dive, the slowest on-gassing as time passes. Whenever you dive, you are loading up rapidly in the first few minutes. This gas needs to be eliminated in the proper fashion, not ignored. Sometimes, the proper fashion is merely a 30 FPM ascent rate, as in diving to 300 feet in a total run of 5 minutes and then back up in 10 minutes. As the dive gets longer, the deco at first jumps and then starts to slow its increase and eventually levels off at saturation.

For dives in the 5-18 minute range, screwing up the deco is not necessarily a life-threatening event, and anything will pretty much get you off the hook. However, it is best to treat these dives as "minimum" deco requirement dives and use no shorting of the schedule. Beyond 20-30 minutes you are in the "mandatory deco" range, where you must not blow off the deco or you will likely be severely injured from it. If you really screw up on a dive like this, but are able to get at least 20 minutes on oxygen at 20 feet, your survival rate will be acceptable.

The mandatory range merely requires "correct deco", not excessive or prolonged deco, just the correct shape and approximate time. It is here and beyond that you can start using the techniques outlined in my previous post. Maximum deco is outlined in an example of a dive that I did with JJ this year. It does no good, and actually more harm to go beyond maximum deco, both in terms of oxygen damage and in terms of how the tissues relatively load and unload. Spending too much time at intermediate steps will merely load up the wrong tissues and make the upper steps less successful.

Keep in mind in minimum deco that the body's reaction to pressure changes is not necessarily instantaneous. This is why commercial divers can get out of the water from 40 feet, change out of their suit, and get into a chamber if they do so within five minutes. I do not know if this is still practiced in, but this alone should give you some clue as to why "minimum" deco is a must. Passing through the depth ranges on the way up too fast does not give the body's tissues time to off-gas into the blood stream. It takes at least two minutes for the blood to make a full pass through the body, and it takes a while for the gas to make it out. If you trap it, which is what happens when minimum deco is ignored, it will merely cause symptoms later when you are on the surface, subclinical symptoms, like tiredness, flu-like symptoms, etc.

I am the fastest decompressor there is, but I do not do anything that is not the right shape or anything that is inadequate. When you look closely at what I do, you will find that for most dives, my deco will be more involved than what is prescribed by any program, will be longer for short dives, and shorter for long dives, will be shorter for helium, and infinite for nitrogen-based gasses.