

Baker's Dozen for not using 80/20

By George Irvine

1) This gas was introduced in an effort to overcome the inability of unqualified student "tech" divers to control their buoyancy in open water, and is as such is yet one more concession to doing things in a convoluted fashion to offset a self-inflicted set of problems brought on by the "doing it wrong" thinking that pervades diving today.

2) A heavy sea is not a problem for a deco stop if it is not posing a lung-loading problem. Look at your depth gauge in a heavy sea and "see" for yourself what the changes are - insignificant, and if they are not, you should either not have been diving or incurring a decompression liability of this magnitude in the first place. In the event of a change in conditions during the dive, see below where the 80/20 becomes a liability rather than an asset.

3) In the interest of using a standardized set of gases for which you can permanently mark your bottles, it is a poor concession to inability to sacrifice the benefits of pure O₂ to accommodate a real or perceived lack of skill - learn to dive before taking up techdiving.

4) In this same interest you will find that when you graduate to real diving, as in caves, you will not want to accelerate your ppo₂ at lower depths while still being faced with a long decompression at shallower depths, and making bizarre mixes to do this is a dangerous mistake (just like the fantasy of holding an accelerated ppo₂ on a rebreather throughout a deco). I am anticipating the thinking that the 80/20 crowd would then go to an additional oxygen in cave without accounting for total exposure, and subject themselves to the risk of tox in the final deco steps. Tox you do not get out of - bends you do.

5) The 80/20 mix is in fact totally useless and contraindicated as a deco gas. At thirty feet it is only a 1.52 ppo₂ (the real 1.6 ppo₂ gas would be 84/16) and as such does not either provide the right oxygen window, nor does it work as well as pure oxygen without an inert gas at any depth. The gas mixing in your lungs has already lowered the effective ppo₂ enough to prevent spiking at 20 feet anyway with the use of pure oxygen - in other words, we are dealing with a simplistic misunderstanding here, or "old wives tale" that is typical in diving.

6) If 100% oxygen is a perceived buoyancy control risk at 20 feet, then why is the same ppo₂ (intended) not a risk at 30 feet? This shows the total lack of reasonable logic involved in the decision to use this gas, as well as a lack of understanding of the whole picture (see the rest of this discussion).

7) Along those lines, all we hear is howling about "oxygen cleaning" above 40% mixtures, and dive shop proprietors on here complaining about scuba tanks with oxygen in them being filled in their shops. With a pure oxygen system, the tank only ever gets filled with oxygen from oxygen tanks, not from every dive shop compressor it sees. Again, this shows the total inconsistency of agency thinking, and reveals that the true reason for this gas is to pretend to lower liability for teaching incompetents to dive, which is bull, and to attempt to accrue some inventive accomplishments to the dive agency pundits who themselves prove that they do no real diving by making this

recommendation in the first place. This is like the colored regs, the stages on either side, the quick-release buckle, and the poodle jacket: nonsense of the most obvious nature developed through one-dimensional thinking by those whose universe of understanding is not only severely limited, but blinded by the hubris of not being the "inventor" of the techniques that work.

8) Any perceived decompression benefit of using a higher ppo₂ at 30 feet with 80/20 is then given back by the lowered ppo₂ at 20 feet, not to mention the fact that the presence of the inert gas in the breathing mixture defeats the purpose of using oxygen in the first place (see the Physiology and Medicine of Diving) . The ppo₂ of 80/20 at 20 feet is 1.28, not much of an oxygen window, and at 10 feet it is 1.04 - useless for deco. To make matters worse, you can not get out from your 30 foot stop in an emergency (not doing the other stops) on the 80/20 mix without really risking a type 2 hit.

9) This is a dangerous method to achieve a greater total volume of gas for the bad breathers (another obvious reason the gas is in vogue), who should not be incurring these decos, and even that benefit of having more gas is lost since it is breathed at 30 feet, and then has to last for the other stops. The fact is that gas is effectively saved by using the lower deco gas up to this point, relying on the pressure gradient to both achieve the deco and provide a break from high the previous gas's higher PPO₂ prior to going to pure oxygen where the spike could be a problem on an extreme exposure without an adequate low ppo₂ break (again this shows that the 80% user is a neophyte diver with no real experience or understanding of the true risks of these dives) .

10) The 20-30% longer 30 foot time on the lower ppo₂ is not only overcome on the pure oxygen at the next stops, the breaks do not come into play until the initial good dose of pure oxygen has been absorbed, since you are not spiking from a high previous dose without a break that is effectively achieved on the previous gas. These things need to be understood and taught by the agencies, not some superficial convoluted solution that is designed to obfuscate the problem rather than openly acknowledge and deal with it in a responsible fashion.

11) In an emergency situation, getting onto the pure O₂ for 20 minutes or so (for long dives something approximating the bottom time or a any decent interval) would give you a real good shot at getting out of the water having missed the rest of your deco and living through it with pain hits only. You have to think these things all the way though, not go for the transparent superficial thinking of those who merely are trying to "make their mark" with some "great" idea they can call their own. The acid test is , as always, is the caliber of the divers who adopt these practices.

12) If there is some problem with your deco or you otherwise develop symptoms and need oxygen either on the surface or back in the water, it is silly to have not had it there all along. 80/20 is a joke for that purpose, unless you have asthma, in which case any accelerated oxygen mix would be a nightmare. This is again part of the "thinking it all the way through" philosophy which is obviously missing from the 80/20 argument.

13) Only a card-carrying stroke would do something like this, and showing up with 80/20 is no different than wearing a sign on your back saying "I am a stroke, and have the papers to prove it". It announces to all the world that you have no clue, kind of like wearing clip-on suspenders or having dog dirt on your shoes.