

Leigh Cunningham

Correct Weighting: What it is and how to get there...

# Do you need to lose some weight?



Leigh Cunningham is the technical manager and TDI Instructor Trainer for Ocean College, Sharm El Sheikh.

Probably best known for his records - Leigh once held the record for the deepest dive in the Red Sea - and attempts of reaching extreme depths, he also has a wide range of teaching credentials to his curriculum:

TDI instructor trainer, DSAT Tech Trimix instructor, PADI MSDT IANTD Technical diver instructor CMAS 3 star instructor.

Regardless of the type of dive, shallow non-deco recreational dive or the 120 metre deep mix wreck dive in the Atlantic, correct weighting will increase the safety and comfort of any dive tenfold. However, it is often the case that not enough emphasis is put on correct weighting from the very beginning, i.e. at the Open Water course.

Text by Leigh Cunningham

There are indeed many instructors that do emphasise the importance of correct weighting, discussing, differing amounts of lead based on the thickness of the exposure suit, wet or dry, salt versus fresh water environments, aluminium versus steel tanks, positioning of lead to increase stability, lead bricks on a standard weight belt, soft shot weights in pockets on a belt, a harness belt system (very secure), ankle weights for those in dry suits and quick release pockets on a BCD. This is all good, keep it up!

Unfortunately, with some students, due to the stress of breathing underwater for the first time, good training and advice tends to go in one ear and out the other. By the time divers (who will naturally have inappropriate breathing techniques initially) have cracked the breathing pattern issue, they



have forgotten what the instructor had to say about correct weighting in the first place.

The Open Water Instructor, myself included, also generally overweight students during initial confined water sessions to keep them steady on the bottom, particularly where confined water sessions are carried out in a sea water environment, in order to carry out required skills, without having students floating to the surface, left right and centre. Sometimes, the only way to get some students through the course is to keep them overweight during the whole course. This is, obviously, not ideal, but in the

real world, where you have five days to do an Open Water course, this is sometimes the case.

Students rarely learn how to breathe correctly underwater during the open water course, and for some it will take hundreds of dives before they get it right. But it is the key to correct weighting; a slow deep, controlled breathing pattern, so until you have this, you're wasting your time. Practice more, or take up golf!

Once you have the correct breathing pattern the steps to correct weighting are easy. So once again regardless of the type of dive,, the single tank non-deco dive, or the 6 tank rig

in 150 metres. The end goal is the same.

We should be carrying enough lead to keep us at the shallowest stop depth at the end of the dive - whether it's the 6 or 3 metre stop on a deco dive, or the safety stop at the end of the non-deco dive - with the BCD or wing empty. The over weighted diver, will find buoyancy control harder, the under weighted diver, could end up with a run away ascent.

Bearing in mind that compressed gas has weight, dives will always start with the diver slightly overweight, at the beginning of the dive, the degree of overweighting for the non-deco single tank diver will

be minimal. For the tech diver, on the deep mix dive, the degree of overweighting will vary more dramatically. This is based upon a number of factors, i.e. how many tanks is the diver carrying, hence the difference in compressed gas weight at the beginning of a dive compared to gas weight (with low gas pressure) at the end of the dive. In some extreme cases, where the diver is carrying multiple tanks, he or she might opt for the support team to attach

*hallow rapid breathing = an over weighted diver*







Many tanks compound to the weight issue. Leigh Cunningham in the Red sea with big tank setup

drop weights on the rig during the ascent, to avoid having to be heavily overweighted at the beginning of the dive.

The tech diver should, however, consider some extra weight, in case you need to run to a bail out/emergency plan, where you would use some of your reserve gas supply, to finish your decompression obligation, ending the dive lighter than you would otherwise be if you were running to your primary plan.

**Back to basics.** Think back to your open water course. At the start of a dive, your instructor probably told you to deflate your BCD completely and hold a normal breath, by which you should ideally be floating at around eye level, or, if in doubt, sinking very slowly. A kilo over, no big deal, as it is better to be slightly overweighted, than slightly under.

In a perfect world, you would have cracked the ideal breathing pattern during the open water course. If not, and you have a few dives under your belt, try it now!

The rule will work for the single tank diver regardless



of the thickness of the exposure suit, salt or freshwater, steel or aluminium tank ect. For the tech diver, due to more kit and multiple tanks, the story becomes more complicated.

**Steel or Aluminium?** Where tech divers using steel tank configurations, the diver could be overweighted with no additional weight, apart from the rig and kit he or she is carrying, not only at the beginning of the dive but also at the end. Now you have two choices; Use aluminium tanks which are less negatively buoyant, or at least mix and match your configuration, rather than having only steel tanks. If you are using a wet suit, change it for a thicker one with more positive buoyancy during decompression (shallow water). But don't forget: While a thicker the wet suit will offer more positive buoyancy during deco, the down side is that due to increased suit compression at depth it loses proportionately more buoyancy in deeper water. If you are using a drysuit, you could opt for using a suit made of crushed neoprene or a membrane type,

also have greater buoyancy changes throughout the dive. So, here we go, all you advanced tech divers out there, it looks like the crushed neoprene or membrane dry suit is the way to go. That is, unless you are diving in a tropical environment, where the air temperature is hotter than your average cup of tea! In which case we are back with the wet suit to avoid over-heat-

*Forget about drop weights if you have a decompression obligation*

ing before getting wet! Hm, I'll leave it up to you.

If you are using aluminium tanks all around, you may need to add weight to establish correct weighting. If so, in order to adjust trim and ensure a good div-

During basic training the instructor often overweight the students to keep them on the bottom during first exercises. More often than not the extra weigh never comes off again



ing position throughout the dive, consider where this weight is placed.

A horizontal diver will off gas more efficiently during deco than the vertical diver who has up to a two meter depth difference between head and feet.

A weight belt might not be the best answer. How about a V- weight placed between the back gas and back plate and wing? Or lead on cam bands, strategically placed on the back gas and/or

stage tanks to adjust trim. Forget about drop weights, you have a decompression obligation, so you will need the weight you started with in order to carry out shallow stops accurately.

**The bottom line:** In order to establish correct weighting, experiment with steel and aluminium tanks, and different types of weight systems. When you get as close to correct weighting as possible, your dive will be safer and more enjoyable.

Have fun, and dive safe! ■



PHOTO BY PETER SYMES