

How to avoid dehydration whilst diving in hot climates

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by Emperor Dive Guide, Daniele Zanoni

Since I started working in the diving industry, I have been asked many questions like, "Why do I have to urinate a lot after a dive?" or "Why do I need to drink more water whilst diving?" So here is my explanation without using too many medical terms.

As many of you know, all the cylinders for diving are filled with pure compressed dry air. Dry means that all the moisture present in the air is totally removed by means of filters before the gas enters the tank. Humans cannot breathe dry air, otherwise the gas exchange that takes place in the alveoli is compromised. So, after you've inhaled from your second stage, the air on its way down to its final destination (the alveoli) is re-moisturized to 100% in your throat, windpipe, bronchia and bronchioles. This process uses water that is normally present in these tissues. So, now you know that if you breathe fast and do not swallow your saliva at all, you will feel a very dry throat.

When you are underwater, you are under pressure. The pressure will move part of your blood in the core of your body, creating a false, slightly high, blood pressure that will disappear at the end of the dive. But while you are underwater, your brain will detect high blood pressure through some receptor in the carotid arteries. This will produce more diluted urine with more water content. The elimination of the water from your body will help reduce the high blood pressure. So again we are losing water that we normally would not lose.

Since we are in Egypt and the air temperature is during most part of the year over 30°C (86°F) or higher, our body needs to maintain a fixed temperature that is normally around 37°C (98.6°F). The easiest way to do this is through perspiration. This process will keep your body cool as long as you can spare water for this process to get going. The final result anyway a big loss of water. Keep in mind what I said, because if you do not have any more water available for this cooling process, your body will stop sweating and your core temperature will rise very quickly leading to a heat stroke.

A lot of people also enjoy "drinking" a little bit while on holiday. Alcohol is a very powerful diuretic, so it will induce your body to produce more urine than you normally would. The ingredient to produce more urine is water. Here we go again! Moreover, if you drink a lot of alcohol the day before the dive, your liver will need a certain amount of water to break down all the alcohol you ingested.

If you do three sixty minute dives in a day, you will lose approximately 1.5 litre of water (to re-moisturize the air you breathe and because of the pressure effect). In addition, you lose a lot of water because you are sweating. The amount of water loss in this case depends on the temperature and how long you expose yourself to these temperatures. If you drank alcohol the day before, you will start your dive day already dehydrated.

When you are dehydrated you will risk getting the bends (or decompression sickness) much earlier. You are breathing the same amount of inert gas (nitrogen) that will dissolve in the same tissues. Then you get dehydrated and the nitrogen comes out again in less volume (less water). The possibility that you get bubble formation in this case is much higher. In addition, when you are dehydrated, your body does not work at its optimum so you might lower the threshold for other conditions.

The doctors working in Sharm El Sheikh recommend that you keep yourself very well hydrated by drinking up to five litres of mineral water each day in the summer. In the hottest periods you can use re-hydration salt as an aid to better retain the water you are drinking. Avoid carbonated drinks, coffee and tea as they will get you even more dehydrated.

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