

HYDRATION



More Water, Less Bubbles

PROMOTING THE IMPORTANCE OF HYDRATION IN DIVING



A woman with wet, dark hair is seen from the back, looking out towards a white boat with a metal railing. The scene is outdoors, likely near a body of water.

INTRODUCTION

Dehydration and its influence on diving safety

Dehydration occurs when your body loses more fluid than is taken in, and this can lead to medical problems that should be avoided.

For you as a diver there is another concern: dehydration is a contributing risk factor for decompression sickness (DCS). Why? Dehydration reduces the volume of blood plasma and perfusion of tissues, so it thickens the blood and reduces blood flow.

Since blood is partially responsible for the transportation of nutrients and for gas exchange, thickened blood will affect the off-gassing of nitrogen and increase the risk of developing DCS.



CAUSES

What are the contributing factors to dehydration?

Nine behavioural and environmental factors play a major role in the diver's dehydration:

1. **Breathing compressed air:** The air in your scuba cylinders is dry and you lose more fluid to humidify this dry air. Due to the colder water temperature, your lungs need to work even more to warm up the air and this increases the moisture loss.
2. **Immersion diuresis (increased urine production):** During the dive the increased ambient pressure and cooler water temperature causes the blood vessels in the extremities to narrow and blood is shunted from the extremities to the core of your body (heart, lungs and large internal blood vessels) in an effort to keep you warm. As a reaction the kidneys produce more urine, which means losing water and salt again.
3. **Sweating:** If you are already in a warm climate and sweating wearing just a t-shirt, imagine how much you will sweat under the dive suit.
4. **Sun, warmth and wind:** On warm, sunny or humid days you sweat more. If lost fluids are not replaced, you become dehydrated. Also, the nice breeze of the wind evaporates sweat and moisture, increasing dehydration.
5. **Seawater/salt:** When salty water dries on your skin, it leaves salt crystals behind. This will take the moisture out of the skin, increasing dehydration further.

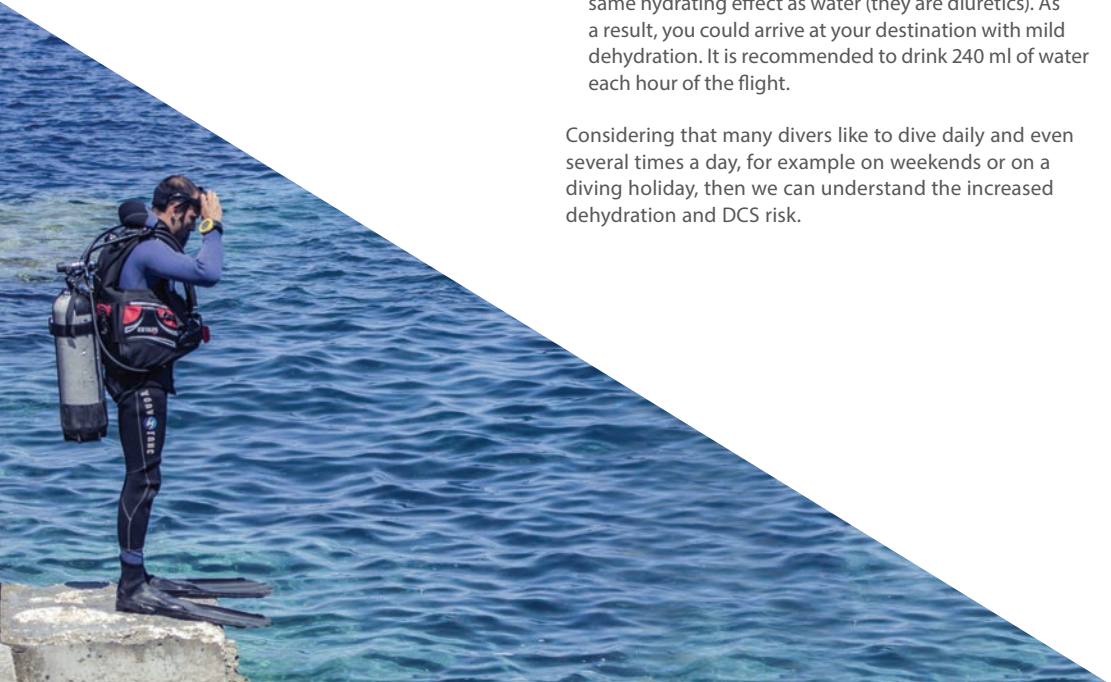
6. Medication: Some medication may have diuretic effects. This means they increase dehydration as they actually absorb water out of your body cells and increase urine production.

7. Alcohol: Drinking and diving is never recommended; in addition, alcohol dehydrates you faster.

8. Sickness/diarrhoea: Vomiting (e.g. seasickness) or traveller's diarrhoea can dehydrate you, as large amounts of fluids and electrolytes are lost in a short period of time.

9. Flight/airplane: As in a diver's cylinder, the air in the cabin is much dryer, causing your body to lose fluids faster. Perhaps you are served coffee, coke or beer during your flight, but these liquids just do not have the same hydrating effect as water (they are diuretics). As a result, you could arrive at your destination with mild dehydration. It is recommended to drink 240 ml of water each hour of the flight.

Considering that many divers like to dive daily and even several times a day, for example on weekends or on a diving holiday, then we can understand the increased dehydration and DCS risk.



SIGNS & SYMPTOMS

Signs and symptoms of dehydration

Check the colour of urine. It should be transparent or light yellow. Darker coloured urine normally means that you are dehydrated.

Symptoms of dehydration include:

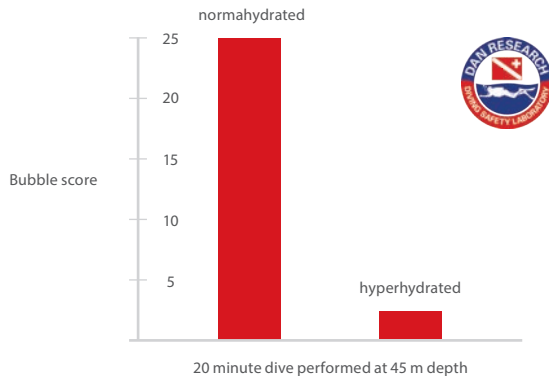
Mild to moderate (can be resolved by drinking water):

- Thirst (drink before you are thirsty as thirsty already means you are dehydrated a bit)
- Dry or sticky mouth
- Dizziness
- Headache
- Muscle cramps

Severe (immediate medical care is required):

- Extreme thirst and very dry mouth
- Dry skin that sags slowly into position when pinched up
- Rapid heartbeat, weak pulse
- Rapid breathing

Hydration and bubbles production



Good hydration significantly reduces the amount of circulating bubbles



Michael Board
*Breath-hold champion, owner
of Freedive Gili and DAN Europe
member.*



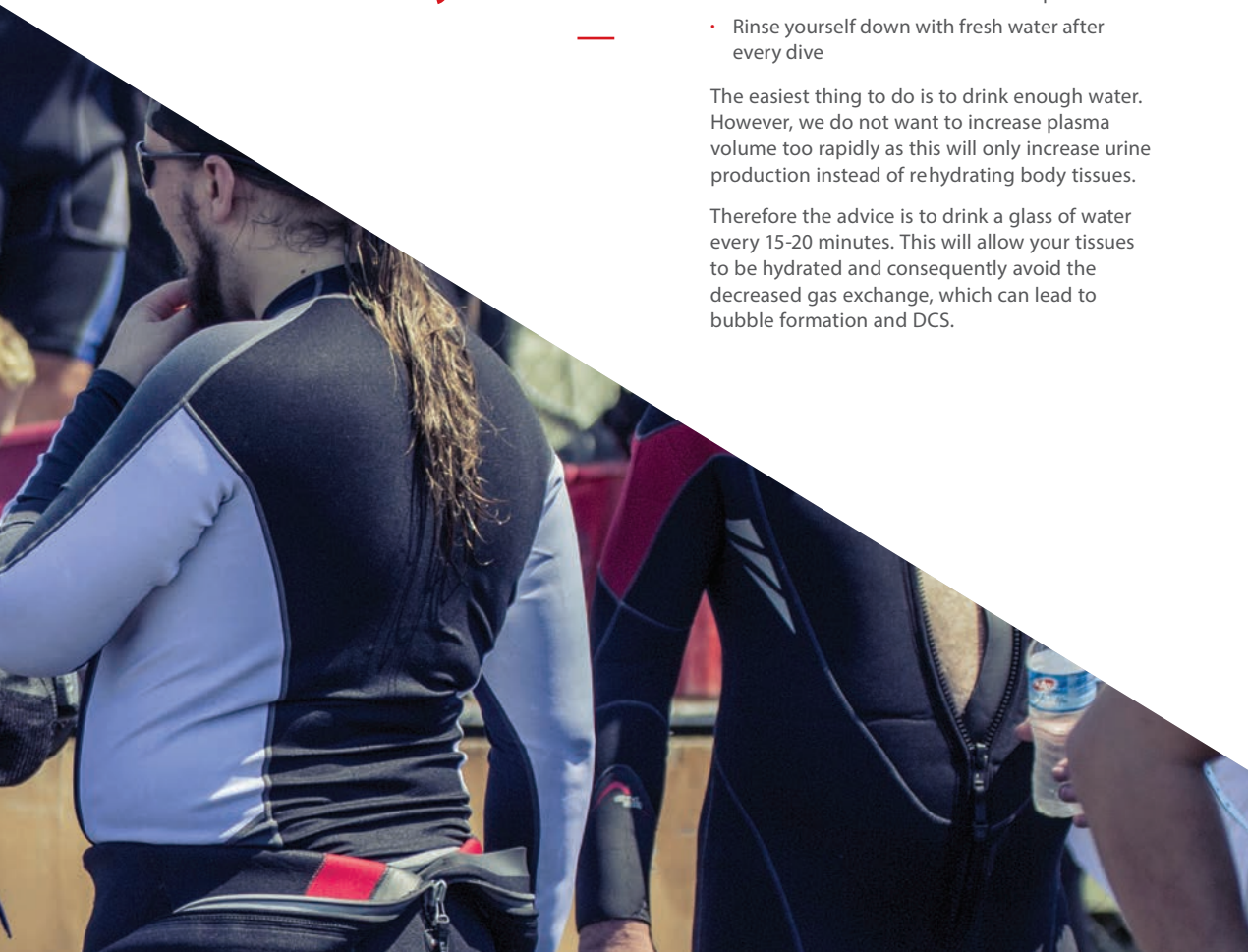
PREVENTION

Preventing dehydration

- Keep your dive suit off until right before the dive itself
- Protect yourself from too much sun/sunburn
- Avoid or moderate alcohol consumption
- Rinse yourself down with fresh water after every dive

The easiest thing to do is to drink enough water. However, we do not want to increase plasma volume too rapidly as this will only increase urine production instead of rehydrating body tissues.

Therefore the advice is to drink a glass of water every 15-20 minutes. This will allow your tissues to be hydrated and consequently avoid the decreased gas exchange, which can lead to bubble formation and DCS.





MORE WATER, LESS BUBBLES

A DAN-SA safety campaign

Throughout its numerous research studies, DAN-SA has demonstrated the importance of drinking water and staying hydrated for a diver. Good hydration can play a significant role in reducing bubble formation and preventing DCI. Stay hydrated, dive safe!

Discover more about this and other
DAN-SA safety campaigns on
www.dansa.org



Follow our campaign on Facebook and Twitter:
[#diverhydration](#) [#DiveSafety](#)

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