

# Hydration: Keeping your cool

◆ By Dr. Elizabeth Broad (Australia), new member of the ICF Medical and Anti-Doping Committee - Picture by Toma Micoud

The concept of hydration is simple but it is one of the easiest things for athletes, even at the elite level, to get wrong. Small amounts of dehydration can have really big effects. Sweat losses totalling just 2% of body weight (1.5 kg in a 75kg athlete) can cause fatigue and reduced skill and are pretty common at both training and competition, especially in the heat. Not all drinks have the same effect on hydration so it's important to think about what you drink as well as how much.

## 4 Good Reasons to focus on hydration

### 1. Fight fatigue

During exercise the body delivers more oxygen to working muscles via the circulation by increasing heart rate and the volume of blood pumped per heart beat. When you are dehydrated, blood volume decreases, which means the heart has to pump faster in order to deliver the same amount of oxygen to the muscles, otherwise fatigue sets in.

### 2. Keep cool

Fluid is needed to provide blood flow to the skin and to produce sweat in response to increased body temperature resulting from exercise. Dehydration can result in a great rise in core body temperature, which can be detrimental to performance and at extreme levels can be fatal.

### 3. Stay fuelled

A recent study has shown that by being dehydrated, an athlete could use up to 16% more muscle glycogen (the muscles main energy source) than they would if they were able to drink enough during their exercise session! A sports drink is also a great way of providing extra fuel during exercise.

### 4. Stay healthy

Upper respiratory tract infections like cold and flu appear to be more common in people who are training heavily. One of the first barriers to infection is your nasal passages. Dehydration reduces the moisture levels in the nasal passages, which reduces their function and could increase the risk of infection.

## Not all drinks are created equal

### During Exercise

During exercise the best beverage choices are sports drink or water. Sports drink has the added benefits of

- providing fuel in a way that is well tolerated during exercise,
- having a flavour that is appealing during exercise
- providing electrolytes (particularly sodium, or salt) which help your body "hold on" to the fluid you drink and keeps you thirsty.

Sports drinks have about half as much sugar as juice, cordial or soft drink but can still provide too much energy for some athletes when consumed in large amounts. Athletes with lower energy needs can stick to water during light sessions or when the weather is cool, but should still consider sports drink during back to back, long or intense exercise sessions or during very hot weather.

### During the day

Once you are off the water, remember to sip at your drink through out the day. Many athletes make the mistake of gulping down a litre or so when they first finish training and then forget about it during the remainder of the day.

This style of drinking tends to be less effective at combating dehydration, as a lot of that large bolus is lost through the urine. Some athletes also make the mistake of only drinking with meals, which again limits the ability to remain hydrated throughout the day.

What drinks are suitable really depends on your energy needs and taste preferences. For those with high energy needs, flavoured drinks such as juice, cordial (diluting juice) or sports drink can encourage better fluid intake and add to carbohydrate intake for the day. For those with lower energy requirements water is the best choice or for more flavour try diet cordial or diet soft drinks. Caffeinated drinks have had a bad wrap in the past but more recent thinking suggests that for regular tea/coffee/cola drinkers the diuretic effect is reduced so these can be included.

### How much should I drink?

Surprisingly this is a difficult question. Many factors affect sweat rates including individual differences, weather conditions (temperature and humidity), exercise duration and intensity. It is possible to over-drink and this can be just as risky as dehydration, so there's no benefit in gulping down litres and litres of fluid over the day. Your goal should always be to roughly match your fluid intake with your losses.

It is possible to measure hydration using urine or blood measures but these are not practical to use with every training session. The simplest technique for monitoring your hydration day to day is to check your urine's colour. Aim to produce a lightly coloured urine relatively often during the day and you should be on the right track. You can assess your sweat losses by weighing yourself before and after training. As a rough guide to fluid loss, every 1 kg lost is roughly 1 litre of fluid so you need to drink at least that much to make it up (and should have consumed it during the session to reduce your overall weight loss). Try this a few times to set up your own individual fluid intake plan of attack. ■

