

Fluids

When we exercise, our muscles only use about 25 per cent of the energy for work, with the rest released as heat – which is why exercise makes you hot! The main way the body is kept cool is by sweating. Heat from the working muscles is transferred to the blood. The blood flow to the skin is increased, and heat is lost by evaporation – sweating. Sweat comes from the water in blood, so we need to replace this vital fluid to prevent dehydration. If we exercise while dehydrated, our temperature can rise quickly and cause heatstroke, which is potentially fatal.

Fluid needs

In general, we need to drink about two litres of fluid a day to be properly hydrated. However, it's quite likely that exercise will increase our fluid needs. The more you sweat, the more you need to drink to replace the lost fluid. Some people naturally sweat heavily, but even small losses can cause fatigue. Plus, the fitter you are, the more effectively you keep your body cool – so the more you sweat. Training harder, longer, or in hot and humid surroundings, will also make you sweat more.

During exercise we lose, on average, 500-1000ml of fluid an hour. The easiest way to estimate how much fluid you lose is to weigh yourself before and after exercising – preferably naked, so as not to include the sweat absorbed within your clothing. Each kg of weight loss is equivalent to a litre of fluid loss. However, you will lose more fluid as urine, so you should drink at least 1.5 litres of fluid for every kg of weight lost. The colour of your urine is also a good indicator of fluid loss – if it's pale and plentiful, you're well hydrated, but if it's dark and sparse, you need more fluid. A loss of just two per cent in your body weight may affect your ability to exercise; a four per cent loss can cause exhaustion. If you're competing, for every one per cent drop in body weight there's about a five per cent drop in performance, which could mean the difference between coming first and last.

If you keep exercising without replacing fluid, you will become increasingly dehydrated. You will no longer be able to keep your body cool, your temperature will rise,

you will feel light-headed and nauseous and, ultimately, get fatigue or heatstroke. The only way to prevent this is to start off well-hydrated, and stay that way!

Drinking schedule

It is vital that you drink plenty of fluid to avoid compromising your health. To succeed, you need to plan your drinking strategies and get into the habit of drinking, so that your body can gradually adapt to increased fluid intakes. Don't leave it to chance, take your beverage choice with you, and keep it with you while you workout – see the 'Hydration and Exercise' box for the best way to stay hydrated during exercise.

It is unlikely that you will drink too much water – not drinking enough is usually the problem. The only time that drinking plain water may cause a problem is if you're sweating very heavily for a prolonged period of time. In this situation, a sports drink containing sodium would be better than plain water, to prevent low blood sodium levels (hyponatraemia).

Hydration and exercise

Before exercising Always start every exercise session well-hydrated. Drink 300–500ml of fluid in the 15 minutes prior to your workout.

During exercise Aim to drink 150–250ml every 15 minutes to offset fluid losses – drinking smaller volumes more frequently minimises stomach discomfort. Remember, the more you sweat, the more you need to drink.

Shelter

After exercise How much fluid you need depends on how much you lost, but you'll probably need at least 500ml. Try to drink 1.5 litres of fluid for every kg of weight lost during exercise, or keep drinking until you pass light-coloured urine.

Which fluid?

Which fluid you opt for depends on how hard you exercise, and for how long. However, choose a flavour you like to encourage you to drink more. If you're exercising at a low-to-moderate intensity for less than an hour, water is great. If you find it difficult to drink large quantities of plain water, try adding some juice or squash, which will also provide you with some carbohydrates to help restock glycogen stores. If you work out continuously for more than an hour, a sports drink would probably be a good idea.

Sports drinks help maintain better fluid levels, plus the added carbohydrates provide vital glucose to help avoid fatigue. Most sports drinks are five to eight per cent carbohydrate, which makes them 'isotonic' – a similar concentration to blood – and, therefore, quickly absorbed.

In addition, sports drinks contain sodium to stimulate sugar and water absorption, and replace the sodium lost in sweat. This added sodium is particularly useful if you're a 'salty sweater' – where your sweat is opaque, tastes salty, and leaves white marks on your clothes. The sodium has the added benefit of encouraging you to drink more. In fact, the drive to drink is present for several hours following exercise (it stops when you eat). However, when your mouth is moistened with fluid, your body automatically signals your brain to stop drinking. This inhibition can happen before the body's fluid levels have been completely restored. This means that even if you don't feel thirsty, you're not necessarily well-hydrated, so it's important to keep drinking fluid throughout the day.

Although alcohol in moderation is fine, it's not a good idea to drink it just before exercise. You also need to rehydrate properly before drinking alcohol after exercise. Alcohol before exercise not only has a detrimental effect on coordination skills and exercise performance, but also increases the risk of injury. Furthermore, alcohol can cause dehydration and slow down recovery from injury.

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