If you are starting to feel inspired to participate in sporting activities, it is important to remember to keep well hydrated. This is especially the case during the summer months and in warm environments, for example in hotter climates, poorly ventilated gyms or sports halls.

Drinking water before, during and after exercise helps us to work out more efficiently and for longer, and while sports drinks have a role to play, particularly for elite level endurance athletes, they are often used inappropriately by the rest of us as recreational drinks, which adds unnecessary calorific intake to our diet.

This factsheet explains why staying well hydrated is important for active individuals and how this can be best achieved.

### WHY IS HYDRATION IMPORTANT?

Physical and cognitive performance can suffer when we are poorly hydrated, especially in hot, humid conditions or when exercise is prolonged⁴. Some of the side-effects linked with a poor hydration status during exercise include:

| ▲ | risk of heat illness |
| ▲ | heart rate |
| ▲ | feelings of effort |
| ▼ | performance |
| ▼ | mental function |
| ▼ | ability to regulate body temperature |
| ▼ | development of headaches, nausea |

Recent studies have shown that for people carrying out prolonged exercise a 2% loss of body mass, i.e. 1.4kg for a 70kg adult, can result in around a 20% decrease in performance levels in temperate climate and up to a 40% decrease in hot temperatures⁴.

An easy way to monitor changes in hydration status is to check the colour of your urine⁴. It should be pale straw colour, anything darker and more fluid is needed.

Source: Adapted from Maughan et al. (2007)⁴
WHAT AFFECTS HYDRATION LEVELS?

Every individual is different and the amount of water needed to hydrate varies from person to person. It is important to be appropriately hydrated before commencing exercise in order to avoid getting cramp. However, avoid drinking too much or you will need to go to the toilet! While exercising, sip water at regular intervals every 20 minutes or so especially in hot weather or at high altitude. For high intensity exercise lasting more than 45 minutes, sports drinks or fruit juice diluted one to one with water may help extend time until exhaustion. It is also important to rehydrate after exercise, and for most people water is adequate. This is best achieved by sipping at intervals, rather than gulping large amounts at a time.

The table to the right summarises key factors that can influence an individual’s water requirements.

<table>
<thead>
<tr>
<th>Duration of exercise</th>
<th>Intensity of exercise</th>
<th>Sweat rates</th>
<th>Temperature of environment</th>
<th>The rate that sweat evaporates (i.e. humid environments slow this down)</th>
</tr>
</thead>
</table>

Careful planning can help you to perform at your very best. For example, if you are going to the gym or to play sport then ensure that you pack a bottle of water in your bag with the rest of your kit.

TYPE OF EXERCISE

Much research has been done on aerobic endurance activities such as long-distance running, cycling and swimming. In one study, the effects of being dehydrated versus hydrated was studied in runners exercising in the heat. Running times were found to be slower and gut temperature (a marker of core body temperature) higher when runners were dehydrated⁵.

Less is known about the effects of dehydration on power/strength exercises, such as body-building, but a new study gives some insight into this. Seven men taking part in the research completed training regimes while they were hydrated or dehydrated. The findings showed that power performance, for example jumping height, was significantly reduced when the men were dehydrated⁶. There is also some evidence that inadequate hydration can adversely effect hormonal and metabolic responses such as how we burn carbohydrate and fat when doing resistance exercises⁷. This could have implications for performance or weight management.
THE ROLE OF SPORTS DRINKS

Sports drinks come in several different forms1 ‘energy’ or ‘power drinks’ that provide calories, sugars and salts or ‘isotonic drinks’ that are more dilute and contain less energy but extra salts.

For mild to moderate exercise including swimming, golf and walking, and for any physical activity lasting less than 45 minutes, water will rehydrate you adequately2. Isotonic drinks may be appropriate if you are carrying out high-intensity physical activity, such as marathon running, competitive cycling or tennis, etc, for more than 45 minutes.

In June 2011 the European Food Safety Authority (EFSA) completed their assessment on sports drinks, and concluded that "the target population for sports drinks are active individuals performing endurance exercise".9

FIVE TIPS FOR HEALTHY HYDRATION

1. For most light intensity types of exercise including recreational swimming, golf and walking, and for any physical activity lasting less than 45 minutes, water will rehydrate you adequately.

2. Sip water in small amounts before, during and after exercise.

3. Replenish fluids regularly especially when sweat rates are high and/or exercising in warm environments.

4. Perform at your best and pack a bottle of water with the rest of your sports gear.

5. Sports drinks may be beneficial for those undertaking regular high-intensity training and performance exercise lasting for more than 45 minutes.

References
8. Providing you eat a balanced & healthy diet

Written by Dr Emma Derbyshire PhD, RNutr. Independent Nutrition Consultant.
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Further information
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Other fact sheets in this series
The Essential Guide to Hydration
Hangover vs. Hydration (or Partying Without Pain)
Hydration and Weight Management
Holiday Hydration
Back to School - Hydration for Children
Pregnancy and Motherhood
Hydration in the Workplace
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