

## **RUNNING ENERGY AND HYDRATION**



**Views on drinks and supplements vary widely according to individual taste and constitution, but here are a few general guidelines, (preceded by a brief science lesson for those who are unsure of the basics).**

### **Carbohydrate**

Carbohydrate is the stuff the body finds easiest to convert into energy. We can only store a certain amount of carbohydrate in the muscles (in the form of glycogen). To make this fuel readily available, we can store it up in the muscles prior to running, as well as keeping it topped up during a run. There are many different sources of carbohydrate, but the best for sustained release of energy are called “long-chain”. These are mainly found in energy drinks and gels in the form of maltodextrin. Glucose and fructose are “short-chain”, providing a more immediate but short-lived effect. Often you will find the main ingredient is maltodextrin, but with smaller amounts of glucose or fructose. This is to provide an immediate short-chain burst, followed by a more sustained long-chain release.

### **Carboloading**

Storing as much carbohydrate in the body before a run (carboloading), means we don't have to try and cram so much in during a run to replenish our starving muscles. Once the stored glycogen is used up, the body will have to resort to burning fat, which is harder work. (If your aim is to burn fat, then of course you might not want to make that glycogen too readily available!). So why not just eat more? Well, for example if we are tapering before a marathon we might not want to stuff ourselves with endless bowls of spaghetti. Too much bulk can make us feel bloated, and may mean we are taking on unnecessary amounts of fat and protein into the bargain. A pure carbohydrate drink (in addition to a healthy diet) is an efficient way of stocking up the muscles with fuel.

### **Hydration**

Hydration affects performance. How much we need to drink when running depends on the temperature, humidity and how hard we are working. It also depends on how well hydrated we are before we start. Dehydration can radically reduce our speed, as well as producing the undesirable side-effects of headaches, nausea and cramps. Electrolytes are valuable minerals, which we can lose through perspiration. The main ones are sodium and potassium. If these levels get too low it's harder for the body to absorb water, and dehydration becomes a downward spiral. An isotonic solution is the same concentration as your body fluid (this will obviously vary slightly according to the individual). A hypotonic solution contains more water. Isotonic is good for getting the carbohydrate into the body as fast as possible, but hypotonic is best for hydration and sustained energy. It's a good idea to use a hypotonic solution of a carbohydrate drink containing a good balance of electrolytes during a run. If you need an energy boost, then it's best to go for something isotonic. Talking of energy boosts, what about gels?

## Energy Gels

Gels come in little disposable plastic packets, and are therefore an easy way to carry carbohydrate during a run. With most of them you need to drink water, as they are concentrated. Some are already in isotonic form, and therefore designed to be taken without fluid. They all vary in terms of pack size and shape, as well as their vitamin and mineral content. Isotonic ones are a little bulkier than concentrated ones because of the higher water content.

## Energy Bars

Bars are a handy, easily digestible source of energy before a run, and a quick source of energy afterwards. They can be especially useful when fitting a run into a busy routine, or when racing away from home. Most people find them difficult to digest during a run though. Protein bars are best used after a run to aid recovery. What else can we do to speed up recovery?

## Recovery

Now we've done the hard work, we need to replace all that carbohydrate we have leached out of our muscles for fuel, and all that electrolyte fluid we've sweated into our technical T-shirts. If we started out well-hydrated and worked hard to replace as we went along, then this won't be too difficult, but don't underestimate how much you need to drink after a run. It's good to carry on with a hypotonic electrolyte drink even after running. Protein is key for rebuilding muscles. A good recovery drink will have a mix of carbohydrate and protein, plus those vitamins and minerals your body will be crying out for after all the exertion. Most of them can be mixed up and put in the fridge before you go out for a long run. Then it will be nicely blended and chilled, and you can access it as soon as possible after you finish.

## What Next?

Most drinks and supplements come in a variety of flavours to suit individual tastes, and most come in trial size packs. It's so important to try things out in training so that you can find out what flavours you like, and how the different types make you feel. There can be nothing worse than trying something out for the first time in a race and finding all your hard training is wasted because a certain flavour or consistency makes you feel sick or bloated. This is one setback which can easily be avoided, so the best advice is cross it off your list of running risks by doing a little research and experimentation to find out what suits you.