

Preparation for Endurance Events

Endurance events are undoubtedly a challenge. However with a little nutritional forethought and preparation, you could give yourself an easier time and the opportunity to achieve your optimum performance without too many aches and pains!

Let's start with the basics.

Balancing Blood Sugar (Glucose)

Nutritional therapists talk ALL the time about blood sugar management, as it is so fundamental to energy levels and health (think about the ever-increasing incidence of diabetes in the UK). Eating high glycaemic index (GI)¹ foodstuffs, such as confectionary or refined foods, e.g. white flour products and white rice, can cause a surge of glucose to be released into the bloodstream. We only need a tiny amount of circulating glucose to sustain our muscles and brain activity - too much can cause damaging "sugar-coating" of proteins. Excessive glucose promotes the quick release of insulin to remove it from the bloodstream. Unfortunately, the consequences can be an aggressive dip in blood glucose with all its ensuing symptoms - fatigue, hunger, inability to think straight, moodiness, carbohydrate cravings AND tendency to reach for another fast-release snack or a stimulant such as coffee. Sound familiar? Not a happy state of affairs for the endurance events. Fortunately a few small dietary modifications can help give you a steady controlled stream of energy:

- 1) Minimise intake of refined carbohydrates (e.g. white flour products / white pasta / rice) - replace with moderate quantities of wholegrains (e.g. products with unrefined oats, rye, wheat etc) / brown pasta and brown rice. Starchy meals - even when they are wholegrain - can also cause blood sugar to rise significantly. **It is important to add some protein** (e.g. fish, meat, yoghurt, nuts, seeds, tofu, cheese, eggs, pulses, beans) to each meal AND snack as protein slows down the breakdown of carbohydrates.
- 2) Avoid honey, syrup, sugar and foods high in sugar, such as cakes, biscuits, chocolate, sweetened yoghurts and desserts. Care should also be taken to read labels - many breakfast cereals and tinned foods also contain substantial amounts of sugar. Dilute fruit juice with water 50:50 to minimise the effects of the sugar it contains. Dried fruits should always be eaten with protein (e.g. yoghurt, nuts, seeds) to slow the release of the fruit sugars.
- 3) Avoid or minimise smoking, alcohol, caffeine-containing drinks (coffee, tea, coca-cola) - they cause sugar to be released into the blood-stream through their stimulating effect. Moreover these substances all deplete levels of nutrients. Alcohol also reduces the body's ability to build muscle.
- 4) Limit "convenience" foods, which often contain large amounts of refined carbohydrates, sugars, harmful fats (avoid hydrogenated fats), preservatives and other chemicals.

¹ The Glycaemic Index is a measurement of how quickly a carbohydrate is broken down into glucose. Glucose is given a score of 100 and each foodstuff is given a score compared with glucose. E.g. white bread is very high - try keeping some white bread in your mouth for a few minutes - you will see it starts to taste sweet because the carbohydrate content is breaking down into glucose! See <http://www.glycemicindex.com> for more information and for the glycaemic index of common foods.

- 5) Eat whole foods, containing fibre to provide a more steady release of sugar - beans, lentils, chickpeas, vegetables, fruit, oats and other wholegrains which are medium - low GI. The best vegetables are those grown ABOVE ground - root vegetables such as potatoes, turnips etc should be eaten in moderation.
- 6) Eat little and often. Don't skip meals, especially breakfast!
- 7) Eat plenty foods containing essential fatty acids (EFAs). These fats improve cellular sensitivity to hormones, including insulin, which can help balance your blood sugar. This is the premise behind "the Zone"². Moreover these fats play a vital role in the fluidity of your cell membranes, ensuring water balance and allowing an efficient flow of nutrients into our cells and waste matter out of our cells. They also help prevent inflammation and joint strain - important to minimise structural damage. Where can you get these fats?
 - ✓ Oily fish is the best source - such as salmon, trout (preferably wild or farmed organically), mackerel, herring, sardines and tuna (eat tuna fresh, not tinned and in moderation as it can be mercury-toxic). Have 2-3 portions per week.
 - ✓ Use cold-pressed flaxseed oil (for salad dressings or for pouring onto cooked vegetables). It should not be heated and is best stored in the fridge due to its fragility. You can find it in your local health food shop.
 - ✓ Eat raw unsalted nuts and seeds: store them in the fridge as they can go rancid.
 - ✓ Replace non-organic with organic meat and dairy products. Studies have shown that organically-grown animals produce more EFAs in their milk.
 - ✓ Replace cheddar with Emmental. Alpine cheese has higher levels of EFAs.
 - ✓ Use Columbus eggs which are from hens fed an EFA-rich diet.
 - ✓ Eat plenty green leafy vegetables, which contain EFAs, albeit in tiny amounts.

So, now we have a basic understanding of how to balance blood sugar. How does that fit in with your event? I recommend following the above eating patterns as much as possible before the event. Concentrate on whole unrefined foods which are low to medium GI (refer to <http://www.glycemicindex.com>). The only place for high GI foodstuffs such as refined carbohydrates or glucose is during or after hard exercise to replenish the glycogen stores. Ingestion of glucose should not be necessary for exercise sessions of less than one hour.

One important note: don't overdo one particular foodstuff. We tend to particularly gorge on wheat, which may cause energy depletion. We have only been eating wheat for 8,000 years in the UK, a blink of an eye in evolutionary terms and many people appear to have problems digesting it. Experiment with products made from other grains such as oatcakes, rye bread, rice cakes etc.

² SEARS, B. 1995. Enter the Zone. *HarperCollins Publishers, Inc.*

Training

For training it is advisable to have a medium GI snack around 1-2 hours before training and a medium to high snack with good quality protein post-training. We have a relatively short window for ingestion of protein after exercise - ideally within **half an hour** of exercise. If this is not possible, certainly have protein within 2 hours. Protein is important for building and repairing your muscles. Don't forget that alcohol will slow down this process (the liver will be too busy detoxifying) and lots of sleep is essential. Bear this in mind during the weeks before your event.

Some examples:

Pre-training snacks:	Post-training snacks:
Hummus on oatcakes (Nairn's rough or organic) Yoghurt, raw unsalted nuts (almonds are best), pear or apple Wholegrain bread tuna, cheese or egg sandwich Ryvitas & tahini (sesame seed paste)	Banana & unsweetened plain yoghurt Rice cakes & cottage cheese Dried fruit & unsweetened plain yoghurt Protein / carbohydrate shake

Hydration

It goes without saying that water is extremely important for your performance. Even if you are only 3% dehydrated, your muscle function will decrease by 8%. Cramping can be caused by dehydration. Every day prior to the event, drink 2-3 litres of water, more if exercising. The week before the event, avoid alcohol and minimise caffeine which both have diuretic effects.

Two hours before the event drink at least 500ml of water. Fifteen minutes before starting drink another 500ml. Thereafter 600-1200 ml per hour. You should be urinating every 2-3 hours. Your urine should be straw-coloured - if it is dark, you are dehydrated (although note that B-vitamins can change the colour of your urine to fluorescent yellow!).

A good rule of thumb is weighing yourself naked before and after an event - for each pound you lose, drink a pint of water.

There are of course many isotonic drinks. "Taut Isotonic" is a relatively new brand on the market, free of caffeine, preservatives, artificial sweeteners / flavours / colours. It is made from spring water and natural fruit flavours with a blend of rapidly-absorbed glucose, beet sugar and fruit sugars for effective energy release. It costs around £1.50 and you can get it from Waitrose, Boots, Tesco, Fresh & Wild, the Nutricentre and sports outlets. I would avoid highly carbonated sports drinks. They may make you bloated and make you drink less as they cause feelings of fullness.

If you are on a budget, you can make your own:

200ml of concentrated orange squash (not diet), 1 litre of water and pinch of salt.

Minimising risk of muscle ache / joint pain / injury

Seventeen different nutrients are involved in maintaining cartilage and bone health. The oxidation caused by hard exercise depletes levels of anti-oxidants. Anti-oxidants are vital for a

healthy immune system - hence the predisposition to colds and flu after a major endurance event. Therefore a good quality multivitamin / mineral (e.g. Biocare's Adult Multivitamins & Minerals Veg Caps One-A-Day £8.80) may be helpful to ensure you are getting a balanced intake of most nutrients, especially since perspiration and effort may cause additional loss of nutrients. I wish I could say that a healthy diet will give you all the nutrients you need. However, sadly, with mineral deficient soils and produce often being shipped half-way around the world; our food no longer has the nutrient content that it may have done a few generations ago.

Biocare's "vitamin C magnesium ascorbate" powder (£7.30 for 60g) gradually sipped in your water bottle during the event may help prevent post-effort muscle ache. Michael Colgan³ recommends up to 5g of vitamin C per day for athletes. The magnesium in the powder may help with energy production and muscle relaxation. One Solgar Zinc Picolinate 22mg Tablet (£8.05 for 100) may facilitate muscle repair. A zinc deficiency post-exercise can diminish appetite and immunity.

Branched chain amino acids⁴ (isoleucine, leucine and valine) are a major component of collagen and maintain the synthesis of body muscle so are a popular choice for athletes⁵. A protein powder after the event could be useful to aid recovery, e.g. Solgar's Whey To Go Protein Powder with branched chain amino acids (£22.79 or £23.75, depending on the flavour, for 340g - 17 portions).

Resources

All the supplements mentioned should be available at some good independent health food shops, e.g. Fresh and Wild and Planet Organic. They can also be found at:

The Nutri Centre (Downstairs from the Hale Clinic, near Great Portland Street tube)
7 Park Crescent
London
W1B 1PF

www.nutricentre.com

Telephone (mail order & general enquiries): 020 7436 5122 - fax : 020 7436 5171

Monday to Friday: 9am to 7pm - Saturdays: 10am to 5pm

10% discount by quoting **ZZAVL010**

Further Reading

Complete Guide to Sports Nutrition (The Complete Guide to) - Anita Bean

ISBN: 0713667419

(From Amazon, £10.55)

Averil is a practising nutritional therapist who trained at the renowned Institute of Optimum Nutrition, founded in 1984 by nutritionist and author Patrick Holford. She is available for one-to-one consultations, workshops and corporate talks.

³ COLGEN, M. 2002. Sports Nutrition Guide. *Apple Publishing Company*.

⁴ Amino acids are the building blocks of protein.

⁵ LAZARIDES, L. 2000. The Amino Acid Report. *Waterfall*.