Sports nutritionist Kathryn Bistany argues that consuming the right food at the right time can drastically boost your performance

Fitness from food

Peak performance in sport is much more closely linked to nutrition than most people realise.

To date, nutrition has tended only to be used as a fuel to energise the athlete, and often it has not been used optimally. Optimum nutrition must form part of all athletes' arsenal along with their physiotherapists, coaches and doctors.

The concept that "athletes who eat a balanced diet, in the right quantities, will get all the nutrients they need from their food", is in my view archaic, incorrect and detrimental to performance. Even if you're eating all the right foods, there's no guarantee your body is digesting and absorbing the nutrients effectively in the first place. Why? Heavy exercise along with pollution, processed foods, stimulants and stress can compromise gut function, which will ultimately affect performance.

Let's look at four areas that are linked to nutrition – energy, strength, mental focus and injuries – and how these relate to peak performance:

Energy

Carbohydrates are essential for energy but they are not all the same. The glycaemic index (GI) is based on how quickly carbohydrates are absorbed into your bloodstream as blood glucose.

The job of high GI foods such as pure glucose, a baked potato and white rice is to give fast energy. However if you're body is not in need of immediate energy, you will end up feeling cranky, anxious, moody and hungry... hungry for junk food, within about one-and-a-half hours of eating.

Medium to low GI foods, such as porridge, beans and fish, give you a slower release of energy, which lasts longer. The drop in energy will also be much slower giving you time to plan what to eat rather than having naughty cravings.

However, your body will be inhibited from making enough energy if it is loaded with toxic metals found in the air, water, food, plastic food packaging and some preservatives.

How can nutrition help? Certain toxic metals can be displaced by certain minerals such as zinc, magnesium and calcium.

Our athletes are often found to be deficient in such minerals – Tim Henman's recent magnesium deficiency being a case in point. As such, minor mineral and vitamin deficiencies must be addressed, often with supplements, to ensure optimum energy.

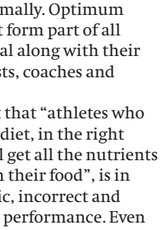
Fat

Most athletes are aware of the detrimental effect of too much saturated fat in their diet. However, some fats are beneficial. One of these is the essential fatty acid (EFA) omega-3.

Unlike saturated fats, omega-3 can be used for energy, may help in weight loss, is essential for brain function and is anti-inflammatory. Omega-3 is found in cold water fish such as salmon, mackerel and herring, as well as flaxseed, also called linseed.

YOUR COACH

Kathryn Bistany is managing director of Corpotential, a specialist agency offering personal and group consultations on general and sports nutrition. Further information: 020 8994 3701; www.corpotential.com. 3 hour adult consult., £250.



Strength

When we talk about strength, the subject of protein arises. Protein requires an adequate amount of hydrochloric acid (HCl) in the stomach to break it down.

Insufficient stomach acid means that proteins are not broken down and used by the body. Most people think they have too much stomach acid and take antacids. In fact, most of us have too little HCl but misinterpret our symptoms. The result? Sub-optimal strength, repair and health. This problem is easily sorted out yet is often undiagnosed.

Mental focus

One area of huge importance to mental focus is blood sugar balance. The secret lies in the GI of foods. A tennis player should stick to high GI foods just before, during and just after an event as the glucose is needed for quick energy and storage of energy into the working muscles and liver. Blood sugar remains balanced allowing the mind to stay alert and focused.

However in a sport like golf, the mental focus required is not matched by a depletion of energy in the same way as tennis. The slightest imbalance in blood sugar will throw their game off; hence the need for low to moderate GI foods or drinks. Golfers are often seen consuming sweet drinks and sugar-loaded sports bars wrongly assuming they need energy.

Injuries

Sadly, when an athlete is injured, it is usually suggested – incorrectly – that they reduce calorific intake. However, there is so much more that should be done, as can be seen from the table to the left.

Adrenal stress

In addition to the four key areas of fitness linked to nutrition, it is also worth looking at diet in relation to adrenal stress – a huge problem with the population at large and in athletes in particular. It can impact on performance and long-term health.

Adrenal stress is a hormonal response secreted by the adrenal glands, which are located just above the kidneys. Two of the stress hormones are adrenaline and cortisol – the latter being responsible for most of the damage.

Although, in the short-term, the effects of stress appear to be positive, long-term stress – that is, the chronic secretion of cortisol – is another story.

Your immune system weakens, making you more prone to bacterial and viral infections, and your stomach is less able to digest food and absorb the nutrients required for the body to deal with toxic metals. Fat in the abdominal area may increase, along with loss of muscle tone, impaired wound healing, sleep and memory problems and resistance to insulin, which can result in diabetes.

Long-term stress is like a death sentence to an athlete. It can be treated, but the earlier this is diagnosed, the quicker the recovery.

Coaches and trainers need to realise that over-training can lead to adrenal stress. A saliva test can confirm any suspicions and if positive, the proper nutritional help can have the athlete back on top form within no time.

Photos taken at Esporta Riverside Northwood, Middlesex, with thanks. Membership: 01923 848000.

DIETARY PLAN FOR INJURED PLAYERS

- **Eat enough, especially if the injury is severe: basal metabolic rate (the rate at which the body burns energy at rest) can increase up to 20 per cent.**
- **Avoid junk food.**
- **Remove all refined and processed foods.**
- **Avoid all saturated fats found in pork products (ham, bacon, salami, sausages and pate), fatty red meats such as lamb and dairy products, ie. reduce pro-inflammatory foods.**
- **Instead, have fish, chicken (without the skin) and extra lean cuts of red meat (ostrich and kangaroo are very low in fat and can be ordered from most butchers).**
- **Increase fruit, vegetable and pulse intake for beneficial antioxidants.**
- **Ensure that your protein intake remains high, ie. 1.0-1.5 per kg (eg. if you weigh 85kg then 85 x 1.0 = 85g and 85 x 1.5 = 127.5g, so eat between 85 and 127.5g of protein.**

THE JUNIOR

Conor O'Brien, 11, plays nine hours of tennis a week. Breakfast is Nestlé Clusters and grapes, lunch is wholemeal Marmite sandwiches, water, crisps, an apple and two Harvest chewy bars. Dinner comprises scrambled eggs or chicken with potatoes or chips, and peas or baked beans. Conor doesn't like vegetables. His biggest downfall is Pringles.

Kathryn says: "The breakfast cereal and Harvest chewy bars are very high in sugar. He can have sugary foods during and after a match, but at other times they're going to upset his blood sugar balance. The lack of green leafy vegetables like broccoli and spinach means Conor may be lacking certain vitamins and minerals. A couple of bites, properly chewed, could help activity levels and growth spurts. Supplement regular meals with Kids Complete or Vitaforte Banana and LipoCell® from BioCare and avoid fizzy drinks."

THE WORKING MOTHER

Mother of three Louise Freethy, in her thirties, works part time as a research consultant and plays club first team tennis. Breakfast is a smoothie of five fruits and cranberry juice. Lunch is an apple or sandwich on the run and dinner is vegetables or salad with chicken or fish. Louise is aware she does not drink enough water. Her biggest downfall is crisps.

Kathryn says: "The fruit first thing will send Louise's glucose levels sky high. She should add yoghurt and a few pumpkin or sunflower seeds to slow down the rush of blood sugar. Louise should avoid eating on the run. It's important to sit down to eat and enjoy your food. Plenty of Vitamin K is needed for good bone health. This is found in turnip greens, cabbage and broccoli. For added security, I suggest a multivitamin and mineral tablet as well as One-A-Day-Plus and LipoCell® or OmegaCare® from BioCare, and lots of water."

THE PERFORMANCE PLAYER

James Stewart, 26, plays and works out for three-and-a-half hours a day and coaches 12 hours a week. Breakfast is porridge made with water, honey, Udo's oil (a mix of omega-3, -6, -7 and -9), plus a banana, and mid-morning he has a sandwich. Lunch is pasta bolognese or fish, with another hot meal in the evening. He has protein drinks, nuts and fruit during the day. His biggest downfall is chocolate.

Kathryn says: "A professional athlete like James should consume high GI foods/ liquids during and after matches and training. At other times, stick to low to moderate GI foods, cutting out sports drinks and health bars. He should eat regularly, ie. every three hours, and consume more colourful vegetables and less fruits (which can affect immune function and blood sugar balance). He should aim for regular bowel movements, a good night's sleep and a daytime nap."