

THE GLYCEMIC INDEX AND SPORTS NUTRITION

The only exception to the low GI rule, applies during and after exercise. Whereas the general public should all eat low GI carbohydrates most of the time if they want to have sustained energy, sportsmen should only eat low GI carbohydrates (1g CHO per kg body weight) 1-2 hours before exercise commences, and resume low GI eating a couple of hours after completing exercise, depending on the duration and intensity of exercise. During exercise, immediately after exercising and for a few hours after exercising, depending on the duration and intensity of exercise, it is best to consume high GI carbohydrate foods and drinks. For the diabetic sportsman/-woman, intermediate GI foods are recommended and only if the activity lasted 2-3 hours, a high GI food or drink is recommended. It is important to realise that the carbohydrate storing ability of the body is limited and therefore needs to be replenished regularly by those who partake in sport on a daily basis. It is therefore important to:

Eat/drink low GI before the event:

Low GI foods and drinks can also be called sustained release or slow release foods. They are digested slowly and can therefore still supply energy 1-2 hours after consumption. If low GI products are consumed 1-2 hours before competing, blood glucose will be maintained at a healthy level for the duration of the activity or sporting event.

During the event:

Competitions that last for more than an 90 minutes, require high GI (Intermediate for Diabetics) foods and drinks at a rate of 30-60g CHO per hour, depending on body weight. If the duration of the exercise is less than 90 minutes, the low GI food/drink that was taken beforehand should be sufficient to sustain blood glucose levels at a healthy level.

After the event:

It is crucial to consume at least 1g carbohydrate/kg bodyweight high GI carbohydrate food or drink within the first 30 to 60 minutes of completing exercise. (Intermediate for Diabetics, unless competing for 2-3 hours). Thereafter 1g CHO/kg body weight should be consumed every 2 hours after exercise. The reason for this is that the exercised muscles continue to absorb glucose from the bloodstream and this happens at the fastest rate during the first 30 – 60 minutes after exercise. Faster replenishment of glycogen into the fatigued muscle is observed if high GI foods are taken as soon as possible after cessation of exercise. Severe hypoglycaemia can be prevented by this course of action and one should also be ensured of sustained energy levels.

The meal or snack eaten 1-2 hours after the event, should still consist mainly of high GI carbohydrates (Intermediate for diabetics). The next meal can be scaled down to Intermediate GI carbohydrates and the meal thereafter should be back at low GI carbohydrates, provided no activity has taken place again later in the day. For very active persons, i.e. those who train 2-3 hours every morning or an hour every morning and an hour every evening, it might mean having to eat high GI foods most of the time. If however, training is scaled down before an event, low GI carbohydrates should dominate all meals for the best carbo loading effect.

Eating for mass building:

Sportsmen (and in fact the general public, as well as bodybuilders) should see to it that 50-60% of their diet consists of carbohydrate, only 20-30% fat and 12-20% protein. Carbohydrate is the fuel of the muscles and too many sportsmen/women suffer from chronic fatigue because they eat too little carbohydrate/the wrong GI carbohydrates at the wrong time and too much protein. This especially holds true for bodybuilders. There is a school of thought that one needs to eat lots of protein in order to build muscle, whereas most bodybuilders will actually consume enough protein if they keep to the recommended 12-20% of energy as protein. The food intake is usually increased due to increased training time, increased muscle mass and consequently metabolism. If protein levels remain at 12-20% of total energy, the actual grams of protein eaten will automatically increase, but so should the grams of carbohydrates and fats. Eating too much protein is expensive, can overtax the kidneys (which is especially dangerous for diabetics), can lead to gout, arthritis and osteoporosis and is really not necessary. The main reason people build muscle, is due to the fact that the muscle is stimulated at cellular level by lifting weights. Many bodybuilders are also inclined to eat very low fat diets, which is mostly unnecessary and very boring. If a diet of less than 30% fat is eaten, the intake of essential fatty acids is

compromised, which is important in keeping blood cholesterol normal, preventing dry skin and for the absorption of fat soluble vitamins. Research has found that as sportsmen get fitter, their bodies become more efficient in using fat as a source of fuel, so that a little extra fat in the diet will not make them fatter, but actually help them to feel more energetic.

Carboloading:

An acceptable technique for enhancing performance is to eat a high carbohydrate diet comprising large quantities of bread, potatoes and pasta. This technique is commonly known as "carbo-loading" and is followed by athletes during the last three days before competing. Although most will probably run better after carbo-loading, this technique does not suit everyone. It is a good idea to try out any diet changes long before the event in which you intend to partake. No one wants to have an upset stomach caused by the high carbohydrate content of the diet on the day of the race.

Because of this, it is advisable for each sportsman/woman to experiment with the diet before deviating too much from his or her normal eating pattern. Runners should also remember that it is important to drink more water than they normally do during carbo-loading. A light-coloured urine indicates that enough water has been consumed. Although vitamin supplements can also be taken while carbo-loading, one should never take vitamin B complex tablets during exercise, particularly those containing nicotinic acid, as they impair endurance if taken in high doses. The best sign that sufficient carbohydrate has been consumed during carbo-loading is an increase in body weight.

Here are a few ways to modify your diet when carbo-loading :

- Eat cereals, bread (with honey), fruit and fruit juices for breakfast. Remember to stick to low GI varieties of these carbohydrate foods if no exercise is done.

- Use skimmed milk in place of full cream milk as it has a low fat content.

- Substitute pasta (macaroni, spaghetti etc.) for meat and eat more potatoes.

- Supplement the diet with 100g of a high-carbohydrate "carbo-loading" athletic drink.

An excellent basic carbo-loading diet could include the following :

FOOD/FLUID	QUANTITY
Orange juice	1 litre
Low fat/skimmed milk	
250 ml	
Wholewheat bread	10 slices
Cereals or muesli	50g
Bananas	3
Apples	2
Potatoes or pasta	200g

This diet provides approximately 400g carbohydrate, 45g protein and 10g fat, and more than 100% of the recommended daily allowances for thiamin, riboflavin, niacin, vitamin C, calcium, magnesium and iron. It is, in fact, one of the healthiest diets available and could form the basis of a diet eaten all year round. Just remember that, if you are resting while carboloading, you should stick to low GI carbohydrates all the way.