WHAT IS THE GLYCAEMIC INDEX (GI)?

The glycaemic index is a scale used to classify foods containing carbohydrate including breads, pasta, rice, cereals, dairy products and drinks. Each food or drink is given a score from 1-100 depending on the rate at which the food is broken down by the body, and the resulting impact it has on blood glucose levels.

The ranking of GI foods is as follows:
• Low GI foods – 55 and under
• Medium GI foods – 56 to 69
• High GI foods – 70 and above

Carbohydrate-containing foods that break down slowly and supply glucose to the body steadily are known to have a low GI. Basing everyday meals and snacks on healthy low GI foods can be helpful to stabilise blood sugar levels.

Carbohydrate-containing foods that break down quickly and release a rapid supply of glucose are known to have a high GI. Pure glucose is the most rapidly absorbed form of carbohydrate and has a score of 100.

WHAT CAN AFFECT THE GI VALUE?

There are many factors that can affect the glycaemic index including how the food is processed, prepared and cooked. For example, potatoes will vary in GI value depending on how old they are.

Other things that affect GI include:
• The type of starch in the food – e.g. different types of rice have different GI values as they contain different types of starch
• Fat and protein eaten at the same time as carbohydrate can delay emptying of the stomach and in turn, will often slow the absorption of carbohydrate
• The amount of fibre in a food can affect the glycaemic index, often with fibre making a food lower GI

There are some peculiar cases with GI, such as low fat icecream and chocolate having a low GI. This is because of its protein and fat content, so it doesn’t necessarily translate that food with a low GI will always make for a snack you will choose every day.

Given that not all foods with a low GI are ideal every day foods (like ice cream and chocolate), it is important to use the GI as a tool alongside what you already know about healthy eating.

PUTTING GI INTO PRACTICE

• Use a low GI bread and a low GI cereal e.g. Rolled Oats, dense wholegrain bread
• Include at least one low GI food at each meal e.g. combine pasta with grilled chicken
• Keep foods ‘whole’ e.g. Intact wholegrain rather than wholemeal or white bread; whole fruit rather than fruit juice; raw and unpeeled fruit and vegetables or just lightly cooked
• A low GI food combined with a high GI food within a meal can give a moderate GI for that meal e.g. natural yoghurt dressing with potato salad

HOW CAN YOU USE THE GLYCAEMIC INDEX IN SPORT?

Carbohydrate rich food and drinks are top priority for athletes aiming for peak performance.*

As the glycaemic index indicates the rate at which carbohydrate containing foods are broken down, it has been suggested that altering the GI of foods and fluids before, during and after exercise will impact on sporting performance. However, despite more than 20 years of research
there is still much debate** and the optimal amount, type and timing of carbohydrate to maximise performance is an on-going area of research.

THE PRE-EXERCISE MEAL

The purpose of the pre-event meal is to top up muscle and liver glycogen stores with carbohydrate which can then be used as muscle fuel during exercise.

Currently there are no universal performance benefits from manipulating the GI of the pre-exercise meal so, working out what to eat before training to maximise your performance will require an element of trial and error.

Opting for foods and drinks which provide a healthy balance of nutrients is a good place to start and you may find that low GI choices help sustain the energy release throughout your training session. If you exercise after work or school, it will be important to include a meal or snack sometime during the afternoon.

Some pre training meal/snack ideas include:

- A grainy bread sandwich with tuna and salad
- Smoothie with low fat milk, yoghurt, small banana and oats
- Hot oats with berries and low fat milk
- Chicken pasta salad
- Bran and berry muffin with a low fat yoghurt

DURING EXERCISE

Having carbohydrate during exercise is generally only necessary when exercise is longer than 90 minutes or 60 minutes if the exercise is at a sustained high intensity. Despite the faster digestion and absorption rates of high GI foods, there is little research into the performance benefits of consuming them during exercise compared with lower GI alternatives.

However, high GI foods are generally easy to eat, less bulky and thus less likely to cause gastrointestinal discomfort during exercise. For these reasons, together with the speed at which they are digested and absorbed, Sports Dietitians and Nutritionists recommend the use of high GI carbohydrate during exercise when warranted** at a rate of 30-60g/hour.

High GI ideas include:

- White bread with jam or honey
- Jelly beans
- Pikelets or crumpets
- Sports drinks and bars
- Sports gels taken with water

AFTER EXERCISE

The goal after exercise is to replenish muscle glycogen (carbohydrate stores) and allow muscles to recover and repair.

If you are exercising a couple of times a week, a carbohydrate rich snack like a muesli/cereal bar, fruit and low fat yoghurt, sandwich, creamed rice or your planned next meal is likely to be adequate for recovery. The GI of this meal is not hugely important.

If training sessions are every day and/or twice a day, a more rapid approach to recovery is desirable and including high GI options may be helpful. Here, good recovery drinks and snacks might include sports drinks, ripe bananas, honey or jam on white bread, pikelets or crumpets.

GLYCAEMIC LOAD

The actual impact of a food on your blood sugar levels is determined not only by the glycaemic index of that food but also the amount of that food that you have. For example, watermelon has a high GI, but a typical serving of watermelon (e.g. a slice) doesn’t actually have that much total carbohydrate in it because it is so full of water. This means that its glycaemic load would be quite low.

In contrast, your average serving of cooked pasta (e.g. a cup or two) may have a low GI, but it is dense in carbohydrate and with the serving size being substantial, the glycaemic load overall would be quite high.

It is also important to remember that we don’t always eat a single food by itself. If you are eating a combination of different foods – say potato, steak and broccoli – even though the potato is high GI, the overall meal will not have a high GI because of the other parts of the meal i.e. the steak and broccoli will have an impact on how quickly the carbohydrate in the potato is absorbed and in this case, meaning that the carbohydrate will be more slowly absorbed.

THE OVERALL MESSAGES ARE:

- Basing everyday meals and snacks on healthy low GI foods can be helpful to stabilise blood sugar levels.
- Remember the amount of food you eat will also impact how much your blood sugar levels rise, not just the GI of a food itself.
- Consider trying different combinations of foods/drinks before, during and after your training based on the tips above and work out what works best for you.

For more information seek individual advice from a Dietitian or Sport Nutritionist