Tailoring GI intake to personal needs

GILES WARRINGTON

Tue, Oct 28, 2008

FOLLOWING ON from last week, the glycaemic index (GI) provides an indication of how food containing carbohydrate influences blood glucose (sugar) levels. It is a useful nutritional tool in that the GI can be used to gauge how certain food types or combinations of foods affect blood sugar and, as a result, energy levels.

By knowing GI of different foods, it is possible to tailor an individual's nutritional intake to cater for personal circumstances and specific dietary needs.

Typical examples of the different GI food types include:

Low GI (55 or less): Multi-grain breads, majority of fruit and vegetables, porridge oats, All-bran, beans and pulses.

Medium GI (56-69): Whole wheat pasta, brown rice, oatmeal, crisps, orange juice, pizza.

High GI (70 or greater): Baked potato, watermelon, corn flakes, white bread, white rice, raisins, ripe bananas, jellies.

A comprehensive list of GI food categories is available at the University of Sydney's website: see glycaemicindex.com.

Glycaemic load

A recent variation on the GI is the concept of the "glycaemic load" (GL) of either a specific food type or a mixed meal. The GL not only takes into account the rate of energy release (GI), but also the total content of carbohydrate included within a particular food source.

If you take whole wheat pasta and vegetables such as peas or carrots as an example, each is classified as medium GI food.

However, the pasta is much more "carbohydrate dense", therefore the GL for a fixed portion would be higher than for the same serving of the vegetables. As a result, the pasta will provide more energy at a medium rate of delivery. Consequently eating a meal rich in high GI carbohydrates such as the majority of breakfast cereals, white bread and biscuits, will provide a high GL.

Interpretation of role and function of the GI may vary within different populations depending on specific circumstances. This is perhaps best illustrated when comparing disease control and sports performance.

Health benefits

Although there is a place for some high and medium GI carbohydrates in a balanced diet, the growing body of scientific evidence points to encouraging a greater consumption of low GI foods in the general population.

This may lead to long-term health benefits and play an important a role to the prevention and treatment of diabetes through an improved glucose control. Low GI diets may also help control and prevent heart disease as well as lowering blood cholesterol levels.

Additionally, the glycaemic index may also have an important role to play in weight management and preventing obesity due to low GI foods being absorbed more slowly. Specifically, low GI foods such as porridge oats are commonly recommended for breakfast as the stored energy is released slowly throughout the morning and reducing the need to snack before lunchtime.

Sports performance

In terms of sports performance, athletic populations have been becoming increasingly aware of the glycaemic index of food taken before, during and after training and competition. In the hours leading to competition, scientific research supports the importance of consuming lower GI foods whereby energy is released more slowly.

In contrast, both during and after prolonged exercise, consuming medium and high GI foods which are easily digested (such as sports drinks, gels and carbohydrate bars) will provide a ready supply of energy to the working muscles, helping to sustain performance.

Consumption of high GI foods immediately after exercise has also been shown to be important to rapidly replenish the depleted glycogen stores in fatigued muscles. This replenishment process commonly referred to by nutritionists as the "window of opportunity" should start within 30 minutes of exercise termination.

Dr Giles Warrington is a sport and exercise physiologist and lecturer in the School of Health and Human Performance at DCU