



Carbohydrates

Fuel For the Body

Carbohydrates provide the 'fuel' to get us through the day. They are readily converted into glucose for the muscles to use for energy, or glycogen for storage in the muscles and liver. Carbohydrates should contribute approximately 50 - 60% of the day's kilojoule intake. This equates to:

- ⇒ General sports activity - 5-6 grams / kg of body weight
- ⇒ Moderately trained athletes - 6-8 grams / kg of body weight
- ⇒ Endurance training - 9-10 grams / kg of body weight
- ⇒ Extreme exercise - 12-13 grams / kg of body weight

Many people do not include sufficient carbohydrates in their diet.

You may have heard the terms 'simple' and 'complex carbohydrates'. These terms were used to describe small 'simple' molecules of carbohydrate (e.g. table sugar) or larger more 'complex' molecules like starch (e.g. potatoes). It would be easy to assume that the body will absorb 'simple' carbohydrates quickly and 'complex' carbohydrates will be absorbed much slower. This however is not always the case and these terms actually tell us very little about the energy supplying characteristics of the food.

Today in nutrition, carbohydrates are classified using the Glycaemic Index (GI). Dieticians have used this system for years in the management of people with diabetes mellitus but in recent times it has been used for much wider applications, such as sport and weight management.

When a food containing carbohydrates is consumed it causes a rise in blood glucose levels or a glycaemic response. The GI allows a comparison of the glycaemic response of foods. The standard used is usually 50g of glucose; this is given the value 100 on the index. This indicates a very rapid and short-lived blood sugar rise. Foods that give a slower and flatter glycaemic response are given a value below 100. The lower the number, the slower and flatter the response. In general, low GI foods are those below 50, moderate are those 50 - 70 and high GI foods are those above 70. These scores are calculated mathematically by measuring the area under the glycaemic response curve and dividing it by the area under the curve after glucose ingestion.

The GI of a food can be influenced by many factors such as fat content. This does not mean that just because a food has a low GI, it is a desirable food choice. It takes a little thought on your part to compare foods and make sensible decisions. It is up to you to read the nutrition panel on the food product and choose the lower fat variety.

What does the GI mean for you?

Foods of low GI have been shown to produce greater levels of satiety; therefore fewer kilojoules can be eaten to produce the same feeling of fullness. This is very handy for a weight loss situation.



- Foods of low GI reduce the blood concentration of insulin after meals. Consistent high levels of blood insulin (hyperinsulinaemia), which are associated with overweight and obesity, are a known risk factor in the development of cardiovascular disease.
- Low to moderate GI foods, because of their slower, flatter energy releasing characteristics, will provide you with sustained energy throughout the day. This means that if you eat these types of foods for breakfast, lunch or snacks you will be less likely to suffer physical fatigue or a lack of energy.

One way to eat in this way is by following a Mediterranean style diet. This diet centres on increasing your bread and cereal intake, lots of fresh fruit and vegetables, the inclusion of legumes and beans everyday and olive oil. Fish, poultry and a small amount of red wine (1 - 2 glasses) are also recommended a few times a week. Red meat consumption is greatly reduced.

A typical day following a low GI, Mediterranean style diet might be as follows:

Breakfast - Bowl of All Bran, Ricebran, Sultana Bran, Special K with reduced fat or skim milk or two pieces of wholegrain or fruit loaf toast with vegemite, jam, baked beans or sliced tomato and a piece of fruit (e.g. apple, orange cherries, peach).

Morning Tea - Cup of tea with reduced fat milk. Piece of fruit, shredded wheat meal or oatmeal biscuit or half a vegemite, jam, peanut butter sandwich on wholegrain bread.

Lunch - Bowl of salad (lettuce, tomato, cucumber, celery, mushrooms, etc.) with a piece of low fat cheese and a slice of crusty bread. Choose a low fat dressing or ask for the dressing on the side (so that you can moderate how much is put on) or salad and tuna or salmon sandwiches on wholegrain, barley or oat bran bread (no butter). A glass of water, orange juice or fat reduced milk. A tub of reduced fat yoghurt.

Afternoon Tea – A cup of tea with reduced fat milk. A piece of fruit and the other half of the sandwich from morning tea or a piece of low fat banana cake or low fat apple muffin.

Dinner - Pasta with vegetarian sauce (tomato, not cream based) or tuna pasta bake with vegetables on the side or Chickpea, lentil or kidney bean based dish with mixed vegetables. Baked or grilled fish (deep sea, cold water fish) with lemon and salad or vegetables or grilled or baked chicken (remove all skin and visible fat before cooking) with vegetables. A few times a week also include 1 - 2 glasses of red wine.

Supper or Dessert - Fruit based low fat dessert (e.g. Vitari), glass of reduced fat milk or cup of tea, slice of fruit loaf toast with jam or honey.

Remember when cooking; use only olive oils rather than butter. Try to have a fish based meal at least 2 times per week. Try to eat more frequent but smaller meals.