

Carbohydrates

Myths & Facts

What Are Carbohydrates?

Carbohydrates are one of our three main sources of energy (sometimes called 'macronutrients'), along with protein and fats. They are broken down during digestion to form glucose so that they can be absorbed, transported around the body, and converted by our cells into energy. Most people think of "carbs" as being breads, pasta, rice etc. but actually, carbohydrates are in most of the foods we eat. There are 3 main types of carbohydrates, that all form an important part of a healthy balanced diet:

- Sugars (as in honey, fruit, lollies)
- Starches (as in bread, pasta, cereal)
- Dietary fibre (as in vegetables, nuts, seeds)

What Does GI Mean?

The glycemic index (GI) tells us how fast or slow a particular type of carbohydrate is digested. Low GI foods are digested more slowly, whilst high GI foods result in more rapid changes in blood sugar and insulin levels. It's most helpful to look at the overall nutritional value of a food and to incorporate all foods in moderation, rather than getting too caught up in specific numbers like grams of carbohydrate, GI rating, or calories (see our handout on Calorie Counting).

Why Do We Need Carbohydrates?

Fuel for our Body and Brain: Carbohydrates are our body's primary, and most efficient energy source because they are converted more readily into glucose than proteins or fats. Carbohydrates are an essential fuel source for our muscles, central nervous system and brain. Some of our body cells (particularly in our brain) prefer to run on glucose, but our brains can't store a supply of glucose. Therefore we need a regular supply of carbohydrates to ensure our brain runs properly. It is a bit like putting fuel in a car...but unlike filling up your car with petrol every few days or weeks, we need to provide our body with carbohydrates *several times a day* in order to ensure optimal functioning. Not eating enough carbohydrates, or having long gaps in the day without carbohydrates can make it difficult for us to concentrate properly, make decisions, plan ahead, or even regulate our emotions. All that complex brain functioning requires fuel, and that fuel is carbohydrates!



Protection: In addition to providing our body with energy, carbohydrates also have a 'protein-sparing effect'. Having adequate carbohydrate in your diet protects muscle tissue from being broken down and used as energy. It also ensures that any protein you do consume is used for their primary purpose (muscle growth and maintenance) rather than being redirected to perform the function of the carbohydrates. It is important to prevent unnecessary muscle breakdown from occurring as this process releases toxins into the blood, which places pressure on our kidneys. Carbohydrates also support healthy immune function.

Digestion & Hydration: Certain types of carbohydrates encourage the growth of healthy bacteria in the intestines which aids digestion and ensures long term gastrointestinal health. Carbohydrates also help our bodies absorb water more effectively, which helps keep us hydrated.



Mood, Sleep & Appetite: Carbohydrate intake is directly linked to the release of serotonin (a neurotransmitter) in the brain. Serotonin is an important chemical that helps to improve mood and to regulate both our sleep/wake cycle and our appetite. Having enough serotonin is important for preventing low mood/depression, and also helps you to sleep well and feel more alert when you're awake. Serotonin also helps to regulate our hunger and fullness signals, and allows people to experience that 'satisfied' feeling following a meal, which helps to prevent over-eating. Therefore, adequate daily carbohydrate intake is essential to allow us to feel good, sleep well, and receive accurate appetite signals from our bodies.

How Much Do We Need?

Carbohydrates should make up the majority of our food intake each day - about 50-60%. Usually, at least a third of these will come from low GI carbohydrates (or "complex carbohydrates") like bread or rice. For ideas about integrating carbohydrates into healthy, balanced and flexible eating, see our handout *Normal Eating*.

Myths About Carbohydrates

Some people believe carbohydrates make you gain weight, or that "low carb diets" are the key to effective weight loss. These beliefs are usually based on simplistic nutrition theories or pseudoscience lacking a true scientific research basis (see our handout on *Interpreting Dietary Advice*). Reducing carbohydrate intake may initially result in some rapid weight loss due to fluid loss, a reduction in overall energy intake, and the loss of muscle tissue, but research suggests this will not be maintained and can be detrimental for our bodies. There is also no scientific evidence to show that eating carbohydrates in the evening causes weight gain; the body metabolises carbohydrate in the same way regardless of the time of day or night.

The Effect of Low Carbohydrate Intake

- Constipation due to lack of dietary fiber
- Bad breath due to the release of ketones
- Fatigue, low energy, tiredness
- Mood swings, low/depressed mood, poor concentration
- Poor immune response
- Increased risk of health problems e.g., bowel cancer