Eating Before Exercise

Many athletes put a lot of emphasis on the pre-event meal believing it is the key element to performance. It is important to remember that food eaten throughout the training week and food and fluid consumed during the event is also important. The meal eaten before exercise should be seen as an opportunity to fine-tune carbohydrate and fluid levels and to ensure you feel comfortable and confident.

When should I eat?

Food consumed before exercise is only useful once it has been digested and absorbed. This means you need to time your food intake so that the fuel becomes available during the exercise period. The time required for digestion depends on the type and quantity of food consumed. Generally, foods high in fat, protein and fibre tend to take longer to digest than other foods, and may increase the risk of stomach discomfort during the event. Large quantities of foods take longer to digest than smaller quantities. You need to experiment to find the timing that best suits your individual needs. Generally, athletes in sports involving lower intensity activity, or sports where the body is supported (e.g. swimming, cycling) are able to tolerate more food in the gut than sports such as running where the gut is jostled about during exercise. A general guide is to have a meal about 3-4 hours before exercise or a lighter snack about 1-2 hours before exercise.

What should I eat?

Food eaten before exercise should provide a good source of carbohydrate. It should also be low in fat and moderate in fibre to aid digestion and reduce the risk of gastrointestinal discomfort or upsets.   On occasions, it may be important to place emphasis pre-event on intake of carbohydrate and fluid. However, it is also useful to continue to consider other nutritional goals when choosing a pre-exercise meal. This means opting for meals that provide a wide variety of nutrients including protein, vitamins and minerals.

The following foods are suitable to eat **3-4 hours** before exercise:
- crumpets with jam or honey + flavoured milk
- baked potato + cottage cheese filling + glass of milk
- baked beans on toast
- breakfast cereal with milk
- bread roll with cheese/meat filling + banana
- fruit salad with fruit-flavoured yoghurt
- pasta or rice with a sauce based on low-fat ingredients (e.g. tomato, vegetables, lean meat)

The following snacks are suitable to eat **1-2 hours** before exercise:
- liquid meal supplement
- milk shake or fruit smoothie
- sports bars (check labels for carbohydrate and protein content)
- breakfast cereal with milk
- cereal bars
- fruit-flavoured yoghurt
- fruit

The following foods are suitable to eat if there is l**ess than 1 hour** before exercise*:
- sports drink
- carbohydrate gel
- cordial
- sports bars
- jelly lollies
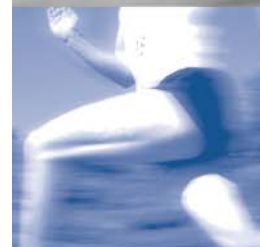
* A small number of people experience an extreme reaction following the intake of carbohydrate in the hour prior to exercise. This topic is covered later in this fact sheet.

Are foods with a low glycaemic index better?

Carbohydrate-containing foods have different effects on blood glucose levels. Foods with a low glycaemic index (GI) cause a slower, sustained release of glucose to the blood, whereas foods with a high GI cause a rapid, short-lived rise in blood glucose. It has been suggested that low GI foods could be useful in the pre-event meal as they would result in a slower and more sustained release of glucose during exercise maintaining blood glucose levels for a longer period. However, research has been unable to demonstrate that consuming low GI foods prior to exercise has universal benefits on exercise performance. In addition, consuming carbohydrate (e.g. sports drink) during exercise provides an alternative way to maintain fuel levels throughout the activity and a study has shown that this practice overrides the effects of different types of carbohydrate in the pre-event meal. If you are involved in an endurance event in which it is difficult to take in extra carbohydrate during the session, you may wish to trial low GI foods before exercise. However, keep in mind that many low GI options (lentils, porridge, multigrain bread) may not be suitable as they are more likely to cause stomach discomfort.

What if I exercise early in the morning?

It is not always practical to eat a meal 3-4 hours before exercise. If you train early in the morning you should opt for a light snack about an hour before exercise. For example, some fruit or a cereal bar on the way to training along with some fluid such as sports drink. Make up for your smaller carbohydrate intake by consuming carbohydrate during the event or training session.

What if I am too nervous to eat?

You will perform better when you are well-fuelled and well hydrated, and the pre-event meal may play an important role in achieving these goals. Experiment to find a routine that works, and foods that are safe and familiar to you. Liquid meal supplements such as PowerBar Protein Plus powder provide an alternative for anyone who has difficulty tolerating solid foods pre-exercise. You may also find that foods such as cereal bars and sports bars can be eaten if you nibble them slowly over the hours leading up to your competition.

Should I avoid carbohydrate 1 hour before exercise?

Most athletes are able to consume carbohydrate in the hour before exercise without affecting performance, and in some cases it can even improve the outcome of the session. However, a small percentage of athletes experience a drop in blood glucose levels and symptoms such as fatigue, shakiness and dizziness after consuming carbohydrate immediately before exercise. This reaction is a response to the increase in carbohydrate use that occurs after carbohydrate intake, associated with a rise in the levels of the hormone, insulin. When the start of exercise coincides with extra carbohydrate use, it is usual to see a small dip in blood glucose levels. In most people, this is a temporary event which is quickly corrected by the body without any side-effects. However, in a few individuals, the drop in blood glucose is greater, or the individual is sensitive to the change, suffering a pronounced fatigue. If you are affected in this way consider the following advice:

- Experiment to find the best timing for your pre-exercise meal. Try allowing a longer period between eating and exercising.
- If you need to eat close to exercise, opt for a snack that provides at least 70 g of carbohydrate. There is some evidence to suggest that small amounts of carbohydrate (<50 g) are more likely to cause problems in sensitive individuals than larger amounts. This is probably because the small intake of carbohydrate is

swamped by the carbohydrate use. Larger intakes will compensate for a greater rate of use, leaving the athlete with a net gain in carbohydrate availability.

- Include some low glycaemic index foods (yoghurt, multigrain bread, pasta, oranges) in the pre-exercise meal. These result in a slower release of glucose throughout exercise and a smaller insulin response compared to higher glycaemic index foods.
- Include some high-intensity activity in your warm-up. This helps to stimulate glucose release from the liver and prevents blood glucose levels from dropping too low.
- Consume carbohydrate during the event.

Should I avoid eating before exercise if I am trying to lose weight?

Exercising in a fasted state (8 hours since the last meal) results in a greater proportion of fat being used as the exercise fuel compared to doing the same workload after a carbohydrate-containing meal or snack. However, it is possible that you will be able to exercise harder and for a longer period if you consume carbohydrate before exercise. Overall, this will result in greater energy use, and a better contribution to the negative energy balance that is needed to cause fat loss. To make a decision about eating before your workout, it is useful to consider the goals of the session. If your primary goal is to improve performance, have something to eat before exercise. If your primary goal is weight loss, and you will do the same amount of exercise regardless of whether you eat or not, save your meal until after the session.