

# Carb loading the right way



Everyone knows about carb loading but do you know how to do it properly? **Scott McGrory**, track cycling coach at the Victorian Institute of Sport, tells you how to achieve the best results

**D**uring the early years of my career I unfortunately overlooked the importance of nutrition. I was like many of the up-and-coming young 'talented' riders of my generation who believed the maxim "train hard and results will follow". Well, yes, they did, but that was pretty much a case of being fortunate enough to be born with raw ability, and having a strong work ethic.

As I moved up in the rankings and eventually turned professional, I started realising that being a pro wasn't just about the status on your racing licence. Being a pro was about getting the absolute best out of yourself, and good nutrition is extremely important in achieving that goal.

One of my favourite sayings is "You don't put diesel in a Ferrari", meaning if you want to perform well, you need to be fueled well. Recently I asked one of the riders I coach why we should eat clean, healthy food as an athlete. He replied, "Because I'll lose weight and climb better." True, he would drop some kilograms and get over the hills faster. But I reminded him that losing weight is just a happy by-product of eating well. That's an added bonus, but the reason to give your body the best clean fuel possible is to enhance the body's ability to perform and recover during heavy training and racing.

There are so many topics that can be discussed on nutrition, but with long and tough events, such as the 3 Peaks Challenge, carbohydrates is perhaps the most important to start with. The following is an in-depth guide to carbohydrate loading used by the Australian Institute of Sport (AIS).

## WHAT IS CARBOHYDRATE LOADING?

'Carbohydrate loading' is probably one of the most misunderstood terms in sports nutrition. People commonly think anyone involved in sport needs to 'carb up' and the way to do this is to eat 'flat out' in the days leading up to an event. Read on to get the real facts on carbohydrate loading.

Carbohydrate loading is a strategy involving changes to training and nutrition that can maximise muscle glycogen (carbohydrate) stores prior to endurance competition.

The technique was originally developed in the late 1960s and typically involved a three to four-day 'depletion phase' involving three to four days of hard training plus a low carbohydrate diet. This depletion phase was thought to be necessary to stimulate the enzyme glycogen synthesis. This was then followed immediately by a three to four-day 'loading phase' involving rest combined with a high carbohydrate diet. The combination of the two phases was shown to boost muscle carbohydrate stores beyond their usual resting levels.

Ongoing research has allowed the method to be refined so that modern day carbohydrate loading is now more manageable for athletes. The depletion phase was demonstrated to be no longer necessary, which is a bonus for athletes as this phase was very difficult. Australian marathon runner, Steve Moneghetti, has described the depletion phase as making him feel like "death warmed up". Today, one to four days of exercise taper while following a high carbohydrate diet (7–12g per kg of body weight) is sufficient to elevate muscle glycogen levels.

## WHO SHOULD CARBOHYDRATE LOAD?

Anyone exercising continuously at a moderate to high intensity for 90 minutes or longer is likely to benefit from carbohydrate loading. Typically, longer-distance cycling, marathon running, longer distance triathlon, cross-country skiing and endurance swimming benefit from carbohydrate loading. Shorter-term exercise is unlikely to benefit as the body's usual carbohydrate stores are adequate. Carbohydrate loading is generally not practical to achieve in team sports where games are played every three to four days. Although it might be argued that players in football and AFL have heavy demands on their muscle fuel stores, it may not be possible to achieve a full carbohydrate loading protocol within the weekly schedule of training and games.

Most studies of glycogen storage have been conducted on male athletes. However, some studies suggest that females may be less responsive to carbohydrate loading, especially during the follicular phase of the menstrual cycle. This appears to be, at least partly, because they have difficulty consuming the larger amounts of carbohydrate required. Further research needs to be conducted specifically on females.

## A high carbohydrate diet

The following diet is suitable for a 70kg athlete aiming to carbohydrate load:

### BREAKFAST

- 3 cups of low-fibre breakfast cereal with 1.5 cups of reduced fat milk, 1 medium banana
- 250ml orange juice

### SNACK

- toasted muffin with honey, 500ml sports drink

### LUNCH

- 2 sandwiches (4 slices of bread) with filling as desired
- 200g tub of low-fat fruit yoghurt
- 375ml can of soft drink

### SNACK

- banana smoothie made with low-fat milk, banana and honey cereal bar

### DINNER

- 1 cup of pasta sauce with 2 cups of cooked pasta, 3 slices of garlic bread, 2 glasses of cordial

### LATE SNACK

- toasted muffin and jam, 500ml sports drink

This sample plan provides approximately 14,800 kJ, 630g carbohydrate, 125g protein and 60g fat.

1 cup of pasta sauce with 2 cups of cooked pasta



## Common mistakes

Research indicates that many athletes who attempt to carbohydrate load fail to achieve their goal. Common mistakes include:

- Carbohydrate loading requires an exercise taper. Athletes can find it difficult to back off training for one to four days before competition. Failing to rest will compromise carbohydrate loading.
- Many athletes fail to eat enough carbohydrate. It seems athletes don't have a good understanding of the amount of food required to carbohydrate load. Working with a sports dietitian or using a carbohydrate counter can be useful.
- In order to consume the necessary amount of carbohydrate, it is necessary to cut back on fibre and make use of compact sources of carbohydrate such as sugar, cordial, soft drink, sports drink, jam, honey, jelly and tinned fruit. Athletes who include too many high-fibre foods in their carbohydrate loading menu may suffer stomach upset or find the food too bulky to consume.

- Carbohydrate loading will most likely cause body mass to increase by approximately two kilograms. This extra weight is due to extra muscle glycogen and water. For some athletes, a fear of weight gain may prevent them from carbohydrate loading adequately.
- Athletes commonly use carbohydrate loading as an excuse to eat everything and anything in sight. Consuming too many high fat foods will make it difficult to consume sufficient carbohydrate. It may also result in a gain of body fat. It is important to stick to high-carbohydrate, low-fat foods while carbohydrate loading.

Now that you have more of an understanding about carbs and carb loading, you can take on some big rides with confidence in your nutritional preparation. So follow these guidelines and get out and meet the challenge head on! ☺

Scott McGrory is an ambassador for the 3 Peaks Challenge. He is profiled on page 46.